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ABSTRACT

The purpose of this study was to identify, delineate, and clarify the opinions, attitudes, and perceptions of a number of groups of Minnesota educators relating to the issues and concerns of junior and senior high school industrial arts teachers, secondary school administrators, and industrial arts teacher educators. Separate survey instruments were used to survey industrial arts teachers, teacher educators, and secondary school principals concerning the following issues: standard certification, state supervision, minimum standards, and funding industrial arts. Respondents indicated the following strong points of industrial arts: provides learning by doing, part of general education, practical, individualized, and exploratory. Weak points of indistrial arts mentioned were low esteem, lack of good students, competition with vocational education, and lack of staff. In addition, the largest percentages of teachers and administrators agreed that equipment for program expansion and improvement were high priority funding needs, while teacher educators considered teacher inservice the high priority item. (The three questionnaires are appended.) (LRA)

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FINAL REPORT

PROJECT NO. 415

INDUSTRIAL ARTS SURVEY

Research and Development Project
in Career Education

Conducted Using Funds Awarded by
Division of Vocational-Technical Education
Minnesota Department of Education
Under Subpart 3, Program Improvement and
Supportive Services, P.L. 94-482

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September 1, 1978

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Robert Bell - Professional Growth Committee of MIAA
Glenn Dukes - Minnesota Industrial Teacher Educators
Bud Erickson - Minnesota Industrial Arts Association
Thomas Ryerson - Minnesota State Department of Education

EMS

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I. INTRODUCTION

This document presents the findings of the Industrial Arts study conducted in the State of Minnesota for the Vocational-Technical Division of the Minnesota Department of Education. The study efforts were coordinated by Educational Management Services (EMS) of Minneapolis in conjunction with the Director of the Research Coordinating Unit and Supervisor of Secondary Industrial Education Programs, Division of Vocational-Technical Education and with the Industrial Arts Study Steering Committee.

1.1 PURPOSE OF THE STUDY

The purpose of the study was to identify, delineate, and clarify the opinions, attitudes, and perceptions of a number of groups of Minnesota educators relating to the issues and concerns of junior and senior high school Industrial Arts teachers, secondary school administrators, and Industrial Arts teacher educators. Issues of concern addressed by the study included the following:

- Standard Certification;
- State Supervision;
- Edu. 53 (minimum standards); and
- Funding of Industrial Arts.

Further, the scope of concerns implicit within these issues was ascertained by seeking response to the following types of questions:

1) What are the definitions relating to Industrial Arts, Industrial Education, Vocational Education, etc., as programs are operated in Minnesota?

2) What function(s) should be assigned to the State Industrial Arts Consultant(s)/Supervisors?

3) How important are work experience and teaching degrees for licensure?

4) How should the teaching license read?

5) How can the image and public awareness of Industrial Arts be improved?

6) What should be the minimum number of required hours for Industrial Arts education at each grade level?

7) What are the needs and concerns of Industrial Arts teachers?

8) How might coordination/articulation between Industrial Arts and Vocational Education be improved?

9) What are the needs for updating and/or revising existing State curriculum guides?

10) How could additional funds, if allocated for Industrial Arts, best be utilized?

1.2 INDUSTRIAL ARTS STUDY STEERING COMMITTEE

An Industrial Arts Study Steering Committee was established for this study. Its membership included the Minnesota State Department of Education Supervisor of Secondary Industrial Education programs, a representative of the Professional Growth Committee of the Minnesota Industrial Arts Association, a representative of the Minnesota Industrial Arts Association, and a representative of the Minnesota Industrial Teacher Educators.

The Steering Committee participated in all phases of the study. During the planning phase, several meetings were held in which three different forms of the questionnaire were developed for the three populations: teachers, teacher educators, and administrators. A cover letter to accompany the questionnaire was written and a set of definitions were drafted to be included in the mailing. These documents are included in the Appendices.

The committee met again after the pilot phase of the study to review the results and to revise the questionnaires based on analysis of the results of the pilot test. Final approval was given to the revised questionnaire and to the sample. After the survey returns were analyzed, the Steering Committee reviewed the preliminary findings. Comments and suggestions from the committee members were noted for incorporation into the Final Report.

II. SAMPLE SELECTION

The Industrial Arts survey was conducted to assess the opinion and attitudes of Minnesota educators regarding current issues germane to Industrial Arts education. Three target populations were selected for the survey - Industrial Arts teachers, teacher educators, and secondary school principals. A different form of the survey instrument was developed for each of the target groups. Chapter III discusses the development of the instruments and the differences in each form.

In the State of Minnesota all Industrial Arts teachers were mailed the form designed for teachers. A validated list of Industrial Arts teacher recipients was provided by the State Department of Education. In all, 2179 Teacher Questionnaires were mailed to this target population.

Teacher educators in the State of Minnesota were identified by the Steering Committee. The majority of Industrial Arts teacher-educators are located at the University of Minnesota or at the other campuses connected with the Minnesota State University system. Teacher Educator Questionnaires covered essentially the same topics as the Teacher Questionnaire but had some differences regarding background data and licensing. Also, the section on Minimum Program Requirements was not included. A total of 68 Teacher Educator Questionnaires were mailed.

The questionnaire for administrators was sent to 115 secondary principals in the State of Minnesota, representing roughly 10 percent of the total number of secondary principals. The 115 names were chosen randomly from a list of all secondary principals provided by the State Department of Education. The Administrator Questionnaire covered the same topics as the Teacher Questionnaire with the exception of Curriculum Development/Updating which it did not address.

III. DEVELOPMENT OF INSTRUMENTS

Three survey instruments were used in the Industrial Arts Survey. All instruments were designed to retrieve information and opinions relating to: 1) State Supervision; 2) Role/Image of Industrial Arts; 3) License Requirements; 4) Teaching Effectiveness; 5) Minimum Program Requirements; 6) Funding; and 7) Curriculum Development/Updating.

Prior to the distribution of the questionnaires to all populations, the Steering Committee arranged for a field test of the Survey Instruments. Approximately 25 persons randomly selected by the Steering Committee participated in the pilot study. Respondents were asked to indicate how long the survey took to complete, to study each item for clarity and usefulness, and to suggest change, deletion, or addition of items. Based on the comments supplied by the pilot study respondents, the questionnaires were revised. After the revised instruments were approved by the Steering Committee, the questionnaires were mailed to the target populations.

All questionnaires retrieved demographic data regarding the respondents. The Teacher Questionnaire contained 10 items pertaining to areas served, years in teaching Industrial Arts, educational preparation, and type of licensure. The Teacher Educator Questionnaire contained 6 items regarding teaching responsibilities, licensure, and education background, while the Administrator Questionnaire included items to provide data on the type of school served and the responsibilities of the administrator.

Questions of State supervision were the same on all forms. Respondents were asked to prioritize the functions/responsibilities of the State Industrial Arts Consultant(s)/Supervisors. Respondents were instructed to rank seven items from high to low priority with the number one indicating the highest priority.

All three populations were asked to indicate if they felt that the image of Industrial Arts needed to be improved. In addition, respondents were requested to list three strong points of Industrial Arts, three weak points of Industrial Arts and to give three suggestions for improving the image of Industrial Arts.

The section on licensure and teacher education contained 10 items on all three forms with 2 additional items included on the Teacher Questionnaire. All groups were asked to rank items relating to work experience and educational degrees. Respondents were given the option of ranking each question as (1) not important, (2) important, (3) very important, (4) no opinion. Teachers were

asked to indicate how the Teaching License should read and if they were being encouraged by their school district to obtain a Master's Degree and a Vocational License.

Three items pertaining to minimum program requirements were included on the Teacher and Administrator questionnaires. Respondents were asked to indicate the minimum number of student hours which should be required in grades K-5, 6-9, and 10-12. Teachers were asked to indicate the percentage of their time spent teaching General Education courses and job entry skills, while administrators were asked to indicate the percent of time devoted to these areas in their schools. Both groups were asked if their school districts have a follow-up system for high school graduates.

The survey included questions regarding State funding on all forms. All groups were requested to prioritize areas where additional State funds should be allocated. Items were ranked from (1) high priority to (5) low priority. In addition teachers and administrators were instructed to check areas in which it might be reasonable to make program or course changes in order to qualify for additional State funding and to list the impact(s) which additional funds would have on improving Industrial Arts instruction for students.

Questions pertaining to curriculum on the Teacher Questionnaire sought to determine how teachers are informed regarding the State Curriculum Publication and the effect, if any, the Publication has had on their program or course offerings. Teachers and teacher educators were querried regarding the content of the State Curriculum Publication and the groups which should provide leadership for curriculum development/updating. Both groups were asked how often the State Curriculum Publication should be revised. Copies of the three forms of the Industrial Arts Questionnaires are found in the Appendices.

IV. SURVEY METHODOLOGY

All Teacher, Teacher Educator, and Administrator Questionnaires for the Industrial Arts Survey were mailed by EMS. Each questionnaire included a cover letter to the respondent explaining the purpose of the survey and instructions for the completion of the form. A one page Background Information sheet including definitions related to terms used in the study was included with each questionnaire.

Questionnaires were coded to assure a representative return of survey responses statewide. To facilitate the return of the questionnaires, a self-addressed, postage-paid envelope was enclosed with each questionnaire.

Approximately ten days after the first mailing, follow-up post cards were mailed to those individuals who had not returned a questionnaire, and after another ten days phone calls were made explaining the importance of the survey and requesting the completion and return of the survey form.

Questionnaires were mailed to 210 administrators, 2179 teachers, and 68 teacher educators. Response rates were the following: administrators, 58.6 percent; teachers, 66.4 percent; and teacher educators 67.6 percent. Twelve percent of the Teacher Questionnaires were returned uncompleted for such reasons as: 1) moved; 2) no longer in teaching; 3) not teaching Industrial Arts. Table 4.1 displays the responses for each group.

The questionnaires were completed by 1178 teachers. Five questionnaires, however, were returned late and could not be used in the analysis of data. Of the 1178 replies, 1161 were usable and are included in the analysis. Of these 1161 teachers, 186 respondents teach vocationally-reimbursed courses. Twenty-eight percent of all respondents indicated that they were Vocationally Licensed.

One hundred-sixteen administrators completed the questionnaire. One form was received late, thus the data analysis is based on 115 replies. Forty-five questionnaires were received from teacher educators. However, since five forms were received late, the analysis is based on forty responses.

TABLE 4.1

INDUSTRIAL ARTS SURVEY RESPONSES

	Teachers	Teacher Educators	Administrators
Total Surveys Sent	2179	68	210
Surveys Received	1178	45	116
Surveys indicating people were no longer there, not in Industrial Arts, etc.	264	1	0
Number who Refused to Respond	4	0	7
Percent Accounted For	66.4%	67.6%	58.6%
Number of No Replies	733	22	87

V. DOCUMENTATION OF POPULATION CHARACTERISTICS

Background information was requested from the three target populations. All respondents were asked to indicate the level of the teaching facility in which they serve and the amount of time spent in fulfilling their responsibilities. In addition, the teacher educator and teacher questionnaires contained items pertaining to educational background, certification, and size of department served.

5.1 DEMOGRAPHIC CHARACTERISTICS OF ADMINISTRATORS

The data in Table 5.1 show that slightly over one-third of the administrators surveyed serve in either a junior high school or a combination junior/senior high school, while slightly less than one-third serve the senior high schools. Adjusted frequencies are provided to indicate the percentage response based on the total number of responses to this item. In this case, the responses were larger than the number of persons sampled because it was possible to check more than one category. Thus, the 41 who teach in the junior high school represents 34 percent of the 121 responses on this item. The relative frequency in this category indicates that the 41 responses represent 36 percent of the total N(115) in the sample.

TABLE 5.1

AREAS WHERE SECONDARY ADMINISTRATORS SERVE
Max N=115

School Served	N	Frequency	
		Relative	Adjusted
Junior High	41	36%	34%
Senior High	34	30	28
Junior/Senior High	43	37	36
Other	3	3	2
TOTAL	121	106%	100%

Note: Total exceeds 100% because of non-exclusive categories.

Administrators were asked to indicate the amount of time spent in performing administrative functions. Of the total sample (115), one hundred seven responded to this item. Analysis of their responses indicated the following:

- Seventy-three percent are full-time administrators.
- Twenty-seven percent teach Industrial Arts, Vocationally-Reimbursed courses, or perform other tasks either on a part-time or full-time basis.

Since the Administrative Questionnaire form was sent only to identified secondary principals, the respondents who indicated other full-time responsibilities may have been reassigned to the classroom during the past school year.

5.2 DEMOGRAPHIC CHARACTERISTICS OF TEACHER EDUCATORS

Teacher educators were asked to indicate the size of the Industrial Arts department in which they serve. As the data in Table 5.2 show, 78 percent teach in departments with 8 or more instructors, while 20 percent serve in departments with seven or fewer teachers.

TABLE 5.2

NUMBER OF TEACHER-EDUCATORS IN INDUSTRIAL ARTS DEPARTMENT
Max N=40

Number	N	Frequency	
		Relative	Adjusted
Six	2	5%	5%
Seven	6	15	15
Eight or More	31	78	80

Note: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

Other signficant demographic findings related to the characteristics of the 40 teacher educators who participated in the study are:

- Fifty-eight percent teach Industrial Arts either full or more than half-time.
- Twenty-eight percent teach vocationally-reimbursed courses less than half-time.
- Fifty percent have 16 or more years teaching experience.
- Fifty percent are Vocationally Licensed.
- Sixty percent have Ph.D.'s and 17 percent have a Master's Degree plus 60 hours but not a doctorate.

5.3 DEMOGRAPHIC CHARACTERISTICS OF INDUSTRIAL ARTS TEACHERS AND VOCATIONALLY-REIMBURSED TEACHERS

The teachers' questionnaires provided background information regarding the areas served and the responsibilities involved, as well as the time allocated to fulfilling these responsibilities. The teachers responding were divided into sub-groups - Industrial Arts Teachers and Vocationally-Reimbursed Teachers - for analyzing the data on items pertaining to areas served and time spent fulfilling their responsibilities. Of the 1,161 teachers responding to the survey, 975 indicated that they teach Industrial Arts courses only (as opposed to Vocationally-Reimbursed), while 186 indicated that they teach one or more Vocationally-Reimbursed courses. Most of the 186 Vocationally-Reimbursed teachers also teach one or more industrial arts courses.

Table 5.3 indicates areas of teaching responsibility. Many teachers have multiple levels of assignment. For example, four percent of teachers (38) who indicated that they taught Industrial Arts, as opposed to Vocationally-Reimbursed courses had an assignment in elementary school in addition to their Industrial Arts assignment. Of the teachers who indicated teaching one or more Vocationally-Reimbursed courses, 65% (120 of the 186) had a teaching assignment in a senior high school. Vocationally-Reimbursed teachers also shared teaching duties at other levels.

TABLE 5.3

AREAS WHERE TEACHERS SERVE

	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186		
	N	Frequency		N	Frequency	
		Relative	Adjusted		Relative	Adjusted
Elementary	38	4%	4%	1	-	-
Junior High	311	32	30	14	8%	7%
Senior High	354	36	34	120	65	59
Junior/ Senior Hi.	254	26	25	46	25	23
Other	76	8	7	23	12	11

Analysis of the demographic data on the Teacher Questionnaires revealed the following statistics:

- Seventy-two percent of the (975) identified Industrial Arts teachers devote full-time to Industrial Arts instruction, while the remainder divide their time between administrative duties and other assignments.

- Twenty-four percent of the (186) identified teachers of vocationally-reimbursed courses devote full-time to this area, while the remainder divide their time between teaching Industrial Arts courses and other duties.

Data in Table 5.4 provides information regarding the specialized areas in which Industrial Arts and Vocationally-Reimbursed teachers serve. Thirty-seven areas appeared on the questionnaire. Up to eight responses for each person were included in the analysis. The relative frequencies shown in Table 5.4 are based on the total number of teachers in the sample while the adjusted frequencies are based on the total number of responses to the item.

The largest number of Industrial Arts teachers (39%) instruct in Woods with this area representing 9 percent of the total areas taught. Drafting, followed by Advanced Woodworking and Electricity are the next most frequently taught courses.

Auto Mechanics and Advanced Woodworking are taught by the

TABLE 5.4

AREA OF TEACHING*

Area	Industrial Arts Teachers N=975			Vocationally-Reimbursed Teachers N=186		
	N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.
Advanced Woodworking	251	26%	6%	28	15%	4%
Air Cond. Refrig.	1	-	-	2	1	-
Arch. Drawing	157	16	4	18	10	4
Auto Body	12	1	-	8	4	1
Auto Mechanics	67	7	2	30	16	6
Aviation	9	1	-	2	1	1
Building Trades	62	6	1	7	4	5
Cabinet Making	114	12	3	1	1	3
Communications	43	4	1	4	2	1
Construction	114	12	3	4	2	3
Design	53	5	1	1	1	1
Drafting	338	35	8	5	3	5
Drawing	161	16	4	1	1	1
Electricity	254	26	6	12	6	5
Electronics	95	10	2	1	1	2
Energy	35	4	1	-	-	1
Foundry	123	13	3	11	6	3
General Metals	242	25	6	3	1	4
Graphic Arts	118	12	3	9	5	2
Hot Metals	69	7	2	1	1	2
Industrial Crafts	69	7	2	-	-	1
Leather	129	13	3	-	-	1
Machine Shop	68	7	2	9	5	5
Manufacturing	70	7	2	-	-	2
Mech. Drawing	161	16	4	-	-	3
Metals	153	16	4	1	1	3
Plastics	218	22	5	-	-	2
Plumbing	14	1	-	-	-	1
Power	63	6	1	-	-	2
Printing Trades	21	2	-	-	-	1
Radio, TV	13	1	-	-	-	1
Sheet Metal	135	14	3	-	-	2
Small Engines	145	15	3	4	2	6
Transportation	12	1	-	-	-	1
Welding	152	16	4	1	1	5
Woods	381	39	9	1	1	5
Other	97	10	2	17	9	5

*Since teachers were allowed to select up to 8 areas, the total N far exceeds the total number of teachers in the sample. Adjusted frequencies are based on the 4,219 Industrial Arts teacher responses and 782 Vocational Education teacher responses.

largest group of Vocationally-Reimbursed teachers and represent 6 percent and 4 percent, respectively, of all areas taught by these teachers.

Table 5.5, providing data related to the years of teaching experience, indicates that 37 percent of all the teachers in the sample have 16 or more years of teaching experience. Approximately two-thirds of all teachers serve in departments with 4 or fewer Industrial Arts teachers as shown in Table 5.6.

In response to the item on educational background, the data in Table 5.7 show that slightly less than 25 percent have a BA or a BA plus 15, while slightly over 25 percent have a BA plus 30. Approximately 28 percent hold an MA degree or an MA plus 30, while 10 percent have 60 credits beyond the MA.

TABLE 5.5

YEARS OF TEACHING EXPERIENCE
INDUSTRIAL ARTS AND VOCATIONAL TEACHERS
Max N=1161

Experience	N	Frequency	
		Relative	Adjusted
2 or less years	69	6%	6%
3 - 6	167	14	16
7 - 10	215	19	20
11 - 15	188	16	18
16 or more	427	37	40

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

TABLE 5.6

NUMBER OF TEACHERS IN THE DEPARTMENT
Max N=1161

Number of Teachers	N	Frequency	
		Relative	Adjusted
2 or less	376	32%	33%
3 - 4	374	32	33
5 - 6	206	18	18
7 or more	170	15	15

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

TABLE 5.7

HIGHEST LEVEL OF EDUCATION OF TEACHERS
Max N=1161

Level	N	Frequency	
		Relative	Adjusted
BA	132	11%	13%
BA + 15	142	12	14
BA + 30	307	26	30
MA	167	14	16
MA + 30	160	14	15
MA + 60	121	10	12
Ph.D.	1	-	-

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

VI. FINDINGS

This chapter of the report presents the findings of the Industrial Arts Survey relative to seven areas of concern: 1) State Supervision; 2) Role/Image of Industrial Arts; 3) License Requirements; 4) Teaching Effectiveness; 5) Minimum Program Requirements; 6) Funding; and 7) Curriculum Development/Updating. Both relative and adjusted frequency percentages are provided where appropriate. Relative frequencies are based on the total number of persons included in the sample, while the adjusted frequencies are based on the total number of responses to a given item.

6.1 STATE SUPERVISION

Participants in the Industrial Arts Survey were asked to prioritize the functions which they felt should be the responsibility of the State Industrial Arts Consultant or Supervisor. In addition, they were requested to list the services relating to Industrial Arts which they would like to receive from the State Department of Education.

6.1.1 Role of the State Consultant

Seven responsibilities or functions which could be fulfilled by an Industrial Arts Consultant or Supervisor were listed on the questionnaire. Respondents were instructed to rank each item on a one-to-five scale, with one indicating high priority.

The results displayed in Table 6.1 indicate the areas in which respondents indicated a high or very high priority (ranks 1 and 2). Promotion of Industrial Arts, through such activities as support of professional and student organizations, planning and conducting conferences/workshops, identifying speakers and similar activities were given high priority ratings by 68 percent of the Industrial Arts teachers as indicated by the relative frequency figure which is based on the total number of Industrial Arts teachers in the sample. The adjusted frequency for this indicates that of the total of 3,079 high priority responses, 22 percent of the Industrial Arts teachers' responses checked Promotion of Industrial Arts.

The largest group of vocationally-reimbursed teachers said that coordination of Industrial Arts and Vocational Education should receive top priority as indicated by the 65 percent relative frequency on this item. The adjusted frequency of 20 percent shows that this item also received the most high priority responses out of the total responses received.

TABLE 6.1

PERCENTAGE RESPONSE INDICATING HIGH OR VERY HIGH PRIORITY AREAS FOR STATE CONSULTANTS/SUPERVISORS

Responses	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Curriculum Development	559	57%	18%	112	60%	18%	31	78%	18%	92	80%	24%
School Visitation	381	39	12	70	38	11	29	73	17	30	26	8
Development of Standards	509	52	17	95	51	16	26	65	15	48	42	13
Coordination of I.A./ Voc. Ed.	397	41	13	120	65	20	17	42	10	66	57	17
Consultant	512	53	16	89	48	14	33	83	19	75	65	20
Promotion of I.A.	665	68	22	110	59	18	32	83	19	62	54	16
Other	56	6	2	16	9	3	4	10	2	6	5	2

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

Eighty three percent of the Teacher Educators feel that a high priority function of a State person should be as a Consultant to schools, with this item tying with the item on promotion for the largest percentage of responses.

Curriculum Development was seen as a high priority item by 80 percent of the administrators and this item also received the largest number of high priority responses, as indicated by the 24 percent adjusted frequency.

6.1.2 State Department Services

All respondents to the Industrial Arts Survey were asked to list the services relative to Industrial Arts which they would like the State Department of Education to provide. The first response of the largest number of respondents in each group was Curriculum Development, as the relative frequencies displayed in Table 6.2 indicate. Curriculum Development also was the area receiving the highest percentage responses from all groups with roughly one-third of all responses falling into this category. State Leadership was the next single item to receive the largest number of first responses by all groups. Funding was considered next in importance by the teachers, while Continuing Education was the third area of importance to teacher educators and administrators.

TABLE 6.2

FIRST RESPONSE REGARDING SERVICES DESIRED FROM THE MINNESOTA STATE DEPARTMENT OF EDUCATION

Responses	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Curriculum Development	164	17%	34%	29	16%	32%	7	18%	32%	22	19%	38%
More Funding	39	4	8	15	8	17	-	-	-	2	2	4
On-Site Visits	16	1	3	2	1	2	-	-	-	2	2	4
Teaching Continuing Education	38	4	8	4	2	4	2	5	9	4	3	7
End Competition	29	3	6	6	3	7	1	3	5	3	3	5
State Leadership	84	9	18	15	8	17	6	15	27	16	14	28
Other	108	11	23	19	10	21	6	15	27	8	57	14

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

The "other" category which received a significant number of responses does not include any items which alone would exceed the minimum number of responses in any single-listed category on the table.

6.2 ROLE/IMAGE OF INDUSTRIAL ARTS

All participants in the Industrial Arts Survey were asked if they felt that the image of Industrial Arts needs improvement. Seventy-eight percent of the teacher educators replied affirmatively to this question, as did 62 percent of the Industrial Arts teachers, 65 percent of the Vocational Education teachers, and 49 percent of the administrators. All groups were also asked to list the strengths and weaknesses of Industrial Arts and to suggest ways for improving the program.

6.2.1 Strong Points of Industrial Arts

An opportunity was given on all three survey forms for respondents to list three descriptive terms or short phrases characterizing the strong points or unique aspects of Industrial Arts. Table 6.3 lists the first response of the respondents and the percentage in each group which listed the phrase first. The "learning by doing" aspect of Industrial Arts education was listed first by the largest

TABLE 6.3

FIRST RESPONSE TO QUESTION REGARDING
STRONG POINTS OF INDUSTRIAL ARTS

Responses	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Technological Society	38	4%	5%	7	4%	5%	5	12%	14%	5	4%	5%
Part of General Edu.	101	10	14	19	10	13	10	25	28	3	3	3
Practical	91	9	12	21	11	14	2	5	6	20	17	22
Learn by Doing	159	16	21	46	25	31	10	25	29	26	23	28
Vocational/Pre-Voc. Training	56	6	8	7	4	5	1	3	3	7	6	8
Individualized	78	8	11	10	5	6	-	-	-	14	12	15
Introduction to Hobbies	24	2	3	4	2	3	1	3	3	1	1	1
Pride in Accomplishment	66	7	9	13	7	9	1	3	3	5	4	5
Inspires Creativity	25	3	3	4	2	3	-	-	-	2	2	2
Exploratory	104	11	14	17	9	11	5	12	14	10	9	11

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

number of individuals in each group, and was also the item to receive the largest percentage response from all groups as indicated by the adjusted frequencies. The importance of Industrial Arts as a part of general education, the practical aspect, individualized nature of Industrial Arts education, and its exploratory nature were also listed first by a significant number of respondents.

6.2.2 Weak Points of Industrial Arts

Respondents were also instructed to list three descriptive terms or short phrases characterizing the weak points (or barriers to realizing full potential) of Industrial Arts. Responses fell into ten major categories with Lack of Funds being listed first by the largest number in all groups. This area also received the largest percentage of all responses ranging from 26 percent for teacher educators to 40 percent for Industrial Arts teachers. Teacher educators also indicated that Low Esteem was a primary weak point of Industrial Arts. A Lack of Good Students received the second largest percentage of all responses by all groups

except the teacher educators with Competition with Vocational Education and Lack of Staff tying for second place among the teacher educator responses. Table 6.4 lists the categories and the frequencies for each area.

TABLE 6.4

FIRST RESPONSE TO QUESTION REGARDING WEAK POINTS IN INDUSTRIAL ARTS

Responses	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Lack of Funds	291	30%	40%	50	27%	36%	9	22%	26%	29	25%	37%
Held in Low Esteen	93	10	13	15	8	11	9	22	26	6	5	8
Lack of State Leadership	54	5	7	14	8	10	3	8	9	4	3	5
Lack of Good Students	102	10	14	22	12	16	2	5	6	9	8	11
Poor Facilities	22	2	3	3	2	2	1	2	3	8	7	10
Reimbursement Process	16	2	2	2	1	1	-	-	-	2	2	3
Competition with Voc.Ed.	41	4	5	3	2	2	4	10	12	2	2	3
Not Enough Time	55	6	8	9	5	7	1	3	3	6	5	8
Lack of Staff	25	3	3	8	4	6	4	10	12	8	7	10
Classes too Large	36	4	5	12	6	9	1	3	3	4	4	5

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

6.2.3 Suggestions for Improving Industrial Arts Image

Respondents who indicated a need for improving the Industrial Arts image were asked to list up to three suggestions for its improvement. Table 6.5 lists the broad categories into which these suggestions were incorporated. Roughly one-third of all responses for each respondent group indicated a need for more publicity and improved public relations. Up-dating the curriculum was also listed first by a large number of those surveyed with responses ranging from 12 percent of the vocationally-reimbursed teachers to 17 percent for administrators. The need for a State Director received a significant number of responses from all groups. More funding also was mentioned often by

TABLE 6.5

FIRST RESPONSE TO QUESTION REGARDING SUGGESTIONS FOR IMPROVING IMAGE

Responses	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Update Curriculum	90	9%	16%	13	7%	12%	6	15%	19%	8	7%	17%
More Funds	92	9	16	10	5	10	1	2	3	5	4	10
More Publicity/Pub. Rel.	171	18	30	35	19	33	9	23	30	16	14	33
Attract Good Students	43	4	8	7	4	7	1	2	3	2	2	5
State Director	82	8	14	13	7	12	5	13	16	5	4	10
Resolve IA-Voc.Ed. Differences	44	5	8	13	7	12	2	5	7	3	3	6
Better Teacher Training	20	2	3	7	4	7	5	13	16	5	4	10
More Recognition	15	2	3	3	2	3	1	2	3	1	1	2
More Professionalism	6	1	1	2	1	2	1	2	3	2	2	5
Better Facilities	6	1	1	2	1	2	-	-	-	1	1	2

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

all groups except the teacher educators who placed more importance on better teacher training.

6.3 LICENSE REQUIREMENTS

All respondents were asked if industrial work experience should be required for entrance licensure, and to indicate the importance, type, and length of such work experience. All groups were also requested to indicate the importance of a Bachelor's Degree as a requirement for licensure. In addition, teachers were asked to respond to a question regarding the wording on the teaching license.

6.3.1 Importance of Work Experience

Teachers, teacher educators, and administrators were asked if industrial work experience should be required for licensure, and if answering affirmatively, to indicate its

importance and the type and length of such experience. Approximately one-third (387 of a possible 1,161) of all teachers in the survey responded that work experience should be required for entrance licensure. This group was made up of 286 industrial arts teachers and 101 vocationally-reimbursed teachers. Six hundred sixty-three (663) or 57% of all teachers said that work experience should not be a prerequisite to licensing with the remainder offering no opinion or not responding to the question. Of the teacher educators, 22 or 55% said work experience should be a requirement while 47, or 41%, of the administrators also suggested that it be a requirement.

Questions concerning the type of required work experience were asked only of the 387 teachers (286 Industrial Arts and 101 Vocationally-Reimbursed) who had agreed that industrial work experience should be required for entrance licensure. Table 6.6 indicates that of the 286 Industrial Arts teachers, 153 or 53% indicated that industrial work experience is important/very important for junior high school teachers while the data in Table 6.7 indicate that 210 or 73% feel it is important at the senior high school level. Vocationally-reimbursed teachers, teacher educators and administrators also placed more importance upon work experience at the senior high school level than at the junior high level.

All four groups of respondents indicated whether or not work experinece should be required for entrance licensure. All respondents who answered affirmatively and all respondents who indicated that work experience is important/very important at either the junior or senior high level, or both, were then asked about the type of work experience performed. This resulted in a reduced N (number) of 221 for industrial arts teachers, 98 for vocationally-reimbursed teachers, 21 for teacher educators, and 41 administrators. Tables 6.8 and 6.9 show the type of work experience preferred by those respondents. The figures in these tables indicate that almost all felt that the work experience should be wage earning or a combination of wage or non-wage earning experience and it should be credit-bearing or a combination of credit-bearing and non-credit bearing experience. These respondents also felt that more hours of work experience should be required of senior high school teachers than of junior high/middle school teachers.

6.3.2 Importance of B.A. (B.S.) Degree

All survey participants were asked if a four-year teaching degree should be required for licensure of Industrial Arts teachers and Vocational Education teachers at the secondary level. As the data in Table 6.10 indicate, the majority of all respondents to this item agree that a degree should be required for teachers in each area, with a slightly larger percentage believing that a degree is more important for Industrial Arts teachers.

TABLE 6.6

IMPORTANCE OF INDUSTRIAL WORK EXPERIENCE FOR JUNIOR HIGH/MIDDLE SCHOOL TEACHERS

Degree of Importance	Industrial Arts Teachers Max N=286			Vocationally-Reimbursed Teachers Max N=101			Teacher-Educators Max N=22			Administrators Max N=47		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Not Important	83	29%	34%	28	28%	29%	8	36%	36%	12	26%	30%
Important	126	44	52	49	48	50	14	64	64	23	49	58
Very Important	27	9	11	19	19	20	-	-	-	5	11	12
No Opinion	6	2	3	1	1	1	-	-	-	-	-	-

NOTE: Relative frequencies based on number of respondents who said that industrial work experience should be required for entrance licensure. Adjusted frequencies are based on the total number of responses.

TABLE 6.7

IMPORTANCE OF INDUSTRIAL WORK EXPERIENCE FOR SENIOR HIGH SCHOOL TEACHERS

Degree of Importance	Industrial Arts Teachers Max N=286			Vocationally-Reimbursed Teachers Max N=101			Teacher-Educators Max N=22			Administrators Max N=47		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Not Important	11	4%	5%	2	2%	2%	1	5%	5%	1	2%	2%
Important	86	30	39	27	27	27	9	40	40	20	42	50
Very Important	124	43	56	71	70	71	11	50	50	19	40	48
No Opinion	1	-	-	-	-	-	1	5	5	-	-	-

NOTE: Relative frequencies based on number of respondents who said that industrial work experience should be required for entrance licensure. Adjusted frequencies are based on the total number of responses.

TABLE 6.8

TYPE OF WORK EXPERIENCE RECOMMENDED FOR ENTRANCE LICENSURE

Type	Industrial Arts Teachers Max N=221			Vocationally-Reimbursed Teachers Max N=98			Teacher-Educators Max N=21			Administrators Max N=41		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Part A												
Credit Bearing	131	59%	62%	45	46%	50%	6	28%	30%	12	29%	31%
Non-Credit Bearing	16	7	8	7	7	8	3	14	15	4	10	11
Combination of Both	61	28	29	31	32	35	10	48	50	18	44	47
No Opinion	4	2	1	6	6	7	1	5	5	4	10	11
Part B												
Wage Earning	141	64	65	60	61	63	14	67	70	13	32	33
Non-Wage Earning	2	1	1	1	1	1	-	-	-	1	2	2
Combination of Both	72	32	33	31	32	32	6	29	30	22	54	55
No Opinion	3	1	1	4	4	4	-	-	-	4	10	10

NOTE: Relative frequencies based on number of respondents who indicated that industrial work experience should be required for entrance licensure and who said it was also important either at the junior or senior high school level or at both. Adjusted frequencies are based on the total number of responses.

TABLE 6.9

NUMBER AND HOURS OF WORK EXPERIENCE RECOMMENDED FOR ENTRANCE LICENSURE

Number of Hours	Industrial Arts Teachers Max N=221			Vocationally-Reimbursed Teachers Max N=98			Teacher-Educators Max N=21			Administrators Max N=41		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Junior High School												
<500 Hours	102	46%	48%	25	26%	26%	4	19%	20%	18	44%	50%
500-999 Hours	56	25	27	31	32	33	7	33	35	13	32	36
1000-1499 Hours	31	14	15	25	26	26	8	38	40	-	-	-
1500-1999 Hours	12	5	6	4	4	4	1	5	5	3	7	8
2000+ Hours	9	4	4	10	10	11	-	-	-	2	5	6
Senior High School												
<500 Hours	29	13	14	2	2	2	-	-	-	11	27	28
500-999 Hours	64	29	31	15	15	16	3	14	15	8	20	20
1000-1499 Hours	53	24	26	17	17	19	7	33	35	12	29	30
1500-1999 Hours	28	13	14	21	21	23	7	33	35	4	10	10
2000+ Hours	32	14	15	37	38	40	3	14	15	5	12	12

NOTE: Relative frequencies based on number of respondents who indicated that industrial work experience should be required for entrance licensure and who said it was also important either at the junior or senior high school level or at both. Adjusted frequencies are based on the total number of responses.

TABLE 6.10

FREQUENCY OF RESPONSES TO QUESTIONS ON THE IMPORTANCE OF A DEGREE FOR LICENSURE

Question	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher-Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Should a 4-year teaching degree be required for licensure of all secondary Industrial Arts teachers?												
Yes	851	87%	98%	164	88%	89%	39	98%	100%	108	94%	95%
No	19	2	2	20	11	11	-	-	-	6	5	5
Should a 4-year teaching degree be required for licensure of all secondary Vocational Education teachers?												
Yes	788	81	90	143	77	77	33	83	83	82	72	73
No	69	7	10	41	4	23	6	15	17	30	26	27

Teachers were asked if they were being encouraged by their school district to obtain a Master's Degree or a Vocational License. The responses to this item revealed that more districts are encouraging teachers to seek a Vocational License than are promoting the Master's Degree, since only 25 percent of the teachers said that their districts were encouraging them to earn a Master's Degree

while 45 percent indicated that they were being encouraged to become vocationally licensed.

6.3.3 Wording on Teacher License

Industrial Arts and Vocational Education teachers were given the opportunity to indicate how they felt the teacher license should read. As the data in Table 6.11 show, opinion was fairly evenly divided between the Industrial Arts teachers, but among Vocational teachers, twice as many preferred the wording "Industrial Education" over the words "Industrial Arts".

6.4 TEACHING EFFECTIVENESS

Respondents were asked about the importance of appropriate work experience and a Master's Degree in improving teaching effectiveness. Sections 6.4.1 and 6.4.2 present the findings related to these items.

6.4.1 Importance of Work Experience

Eighty-four percent (156 of 186) of the Vocational teachers in the sample population felt that appropriate work experience is important in improving teaching effectiveness, while 66 percent (648 of 975) of all Industrial Arts teachers responded similarly. Approximately 75 percent of the teacher educators and administrators agreed with the teachers on this item.

6.4.2 Importance of Master's Degree

A Master's Degree was considered to be of much less importance in improving teaching effectiveness than industrial work experience, with only approximately one-third of all groups indicating that the Master's Degree was important or very important.

Teachers were also asked to list ways in which the Master's Degree program could be changed to better meet the needs of teachers. Table 6.12 presents the first response to this item and indicates that both groups of teachers would like to see more emphasis on technically-oriented programs.

Table 6.13 presents data describing the first responses of teachers regarding the programs or services from teacher education colleges/universities which would be helpful. More inservice was listed most often by both teacher groups. Industrial Arts teachers also felt more field experience and updating the curriculum would be helpful, while vocationally-reimbursed teachers indicated a need for more specialized courses and more field experience.

TABLE 6.11

WORDING ON TEACHING LICENSE

License Should Read	Industrial Arts Teachers Max N=975		Vocationally-Reimb. Teachers Max N=186		Overall Max N=1161	
	N	Frequency	N	Frequency	N	Frequency
Industrial Arts	392	40%	37	20%	429	37%
Industrial Education	373	38	104	56	477	41
No Opinion/Other	169	18	41	22	210	18
No Response	41	4	4	2	45	4

TABLE 6.12

WAYS IN WHICH MASTER'S DEGREE PROGRAMS COULD BE CHANGED TO BETTER MEET NEEDS OF TEACHERS

Response	Industrial Arts Teachers Max N=975			Vocationally-Reimb. Teachers Max N=186		
	N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.
Directed Work Experience	75	8%	12%	23	12%	20%
More Oriented Toward Teaching	106	11	17	7	4	6
More Relevant Courses	93	9	15	6	3	6
More Technically Oriented Programs	130	13	21	30	16	27
More Advanced Courses	7	1	1	1	1	1
More Specialization	33	3	5	5	3	4
More Flexible Class Scheduling	18	2	3	5	3	4
Adequate as Exists	43	4	7	9	5	8
Other	127	13	20	27	14	24

NOTE: Relative frequencies based on total number of teachers in the sample.
Adjusted frequencies based on total number of first responses.

TABLE 6.13

ADDITIONAL HELPFUL SERVICES FROM
TEACHER EDUCATION COLLEGES/UNIVERSITIES*

Response	Industrial Arts Teachers Max N=975			Vocationally-Reimb. Teachers Max N=186		
	N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.
More Inservice	196	20%	38%	39	21%	40%
Instructors have more field experience	53	5	10	10	5	10
Better communication with teachers	35	5	7	1	1	1
Update curriculum	49	5	9	5	3	5
More diversified courses	22	2	4	1	1	1
More specialized courses	30	3	6	13	7	14
More safety training	6	1	1	1	1	1
Adequate as exists	10	1	2	4	2	4
Other	118	12	23	23	12	24

NOTE: Relative frequencies based on total number of teachers in the sample.
Adjusted frequencies based on total number of first responses.

6.5 MINIMUM PROGRAM REQUIREMENTS

The next two sections present data relating to the minimum program requirements for Industrial Arts education and the areas in which teachers and administrators spent their teaching hours.

6.5.1 Student Participation in Industrial Arts

Teachers and administrators were asked what they felt should be the minimum required number of hours of student participation in Industrial Arts at three grade levels. The median number of hours for each group is listed in Table 6.14.

Teachers are generally in agreement on this item, with administrators differing considerably in the number of hours required at the K-5 and 10-12 levels.

TABLE 6.14

MEDIAN HOURS OF STUDENT PARTICIPATION

Grades	Industrial Arts Teachers	Vocationally-Reimbursed Teachers	Administrators
K - 5	36	36	120
6 - 9	90	90	120
10 - 12	100	90	60

6.5.2 Allocation of Teacher Time

Analysis of the questionnaire item related to the allocation of teacher and administrator time yielded the following information:

- Approximately two-thirds of all Administrators said that General Education courses constitute 50% or more of the course offerings.
- Approximately one-fourth of the Industrial Arts teachers stated that they are teaching 50% or more of their time in Job Entry Skill Courses.
- Approximately two-thirds of the Vocational teachers said that they are teaching more than 50% of their time in Job Entry Skill Courses.

6.6 FUNDING

Opinion was sought from all three target populations regarding the best way in which additional funds could be spent if they were provided for Industrial Arts education by the State Department of Education. In addition, the teachers' and administrators' questionnaire included items regarding the impact of additional State funding and the program changes which it might be reasonable to expect to qualify for this additional funding.

6.6.1 Ranking of Priorities for State Funds

The largest percentages of teachers and administrators agreed that equipment for program expansion and improvement were high priority needs, while teacher educators considered teacher inservice the high priority item. Over 50 percent of all groups felt that local curriculum development should

receive high priority, with this item so rated by 73 percent of the administrators. Over 70 percent of the administrators also agreed that teacher in-service deserved high priority. Only one group, the teacher educators, indicated by a 66 percent high priority response, that they would favor using additional funds for pilot or experimental programs. Table 6.15 provides data on the number and percentage of respondents who checked high or very high priority for areas in which they felt additional funding could be beneficial for students. Another indicator of the value placed on these items is provided in Table 6.16 which shows the mean response in each area.

6.6.2 Ways Current Programs Could be Changed

Administrators and teachers were asked to indicate the ways in which it might be reasonable (and beneficial) to change current programs or courses to meet any requirements which might be needed to qualify for additional State funding. As the data in Table 6.17 show, all groups felt that program depth and in-service training were areas in which changes might be necessary and administrators indicated that program objectives also might need to be changed to meet the requirements for additional funding.

6.6.3 Impact of Additional Funding

In addition, respondents listed the impact(s) that additional funds could have on improving instruction in Industrial Arts for students in their schools. Program and better equipment/facilities were areas checked by the largest percentage of teachers and administrators, as the data in Table 6.18 show.

6.7 CURRICULUM DEVELOPMENT/UPDATING

Teacher educators and teachers were asked to respond to questions regarding the content and the usefulness of the April 14, 1974 Industrial Education in Minnesota State Curriculum Publication. In addition, the teachers were asked questions concerning their exposure to information on the State Curriculum Publication, their attendance at curriculum workshops, and the influence the State Curriculum Publication may have had on their teaching. Also teachers, who have added courses or made any changes in emphasis of courses, were asked to indicate which programs were involved. Both groups were asked how often they felt the State Curriculum Publication should be revised. Sections 6.7.1, 6.7.2, and 6.7.3 present the study findings relating to these curriculum concerns.

TABLE 6.15

PRIORITIES FOR ALLOCATING ADDITIONAL FUNDS

Priority	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Teacher Educators Max N=40			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Teacher Salaries	467	48%	14%	10	55%	2%	8	20%	5%	45	39%	10%
State Level Curr. Develop.	323	33	10	76	41	13	22	54	13	52	45	12
Local Curr. Develop.	528	54	16	101	54	16	26	65	16	84	73	19
Teacher Inservice	531	54	16	113	61	18	29	73	18	85	74	19
Equipment	697	71	21	158	85	26	22	55	13	88	77	20
Pilot/Experimental Prog.	315	32	9	50	27	8	26	66	16	41	35	10
Add. State Supervision	248	25	7	42	23	7	20	50	12	19	16	4
Ind. Arts Student Organ. Proj.	182	19	5	42	23	7	12	30	7	19	17	4
All Other Responses	61	6	2	17	9	3	1	2	-	7	6	2

NOTE: Relative frequencies based on total number in the sample. Adjusted frequencies based on total number of very high/high priority responses.

TABLE 6.16

PRIORITIES FOR ALLOCATING ADDITIONAL FUNDS
MEAN RESPONSE*

Priority	Industrial Arts Teachers Mean $\bar{X}$	Vocationally Reimbursed Teachers Mean $\bar{X}$	Teacher Educators Mean $\bar{X}$	Administrators Mean $\bar{X}$
Teachers' Salaries	2.42	2.30	3.46	2.87
State Curriculum Develop.	2.90	2.89	2.21	2.69
Local Curriculum Develop.	2.27	2.45	1.97	1.97
Teacher Inservice	2.19	2.23	1.89	1.96
Equipment	1.66	1.51	2.18	1.89
Pilot/Experimental Prog.	2.87	3.10	2.07	2.95
Additional State Supervision	3.16	3.41	2.51	3.69

* $\bar{X}$ based on range 1 = very high priority, 5 = very low priority.

TABLE 6.17

POSSIBLE CHANGES REQUIRED TO QUALIFY FOR ADDITIONAL FUNDS

Changes	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
Program Objectives	246	25%	17%	60	32%	18%	60	52%	27%
Program Depth	361	37	25	85	46	26	42	36	19
Inservice Training	369	38	26	82	44	25	60	52	27
Evaluation	240	25	16	54	29	17	43	37	19
Changes Not Reasonable	236	24	16	47	25	14	17	15	8

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

TABLE 6.18

IMPACT(S) OF ADDITIONAL FUNDS ON IMPROVING INSTRUCTION

Changes	Industrial Arts Teachers Max N=975			Vocationally-Reimbursed Teachers Max N=186			Administrators Max N=115		
	N	Frequency		N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.		Rel.	Adj.
No Benefit	32	3%	5%	8	4%	6%	12	10%	16%
Improve Program	190	19	30	38	20	28	21	18	28
Improve/Increase Teachers	73	7	11	13	7	9	7	6	9
Reduce Class Size	24	2	4	9	5	6	2	2	2
Better Equipment/ Facilities	235	24	37	62	33	45	15	13	20
All Other Responses	82	8	13	9	5	6	19	17	25

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

6.7.1 Teacher Educators' Views Regarding the State Curriculum Publication

Over three-quarters of the teacher educators agreed on three items regarding the State Curriculum Publication: 1) provides information that helps teachers in the classroom; 2) provides information that helps teachers in curriculum development and design; and 3) needs to be supplemented with detailed outlines or courses of study to assist teachers in course planning. A slightly lower percentage (62%) felt that the curriculum needs to be rewritten. As the data on Table 6.19 indicate, 42 percent indicated that the publication has general acceptance by teachers, while 40% indicated that it did not.

Another item on the teacher educator questionnaire asked for an indication of the areas which the State Curriculum Publication should address. Table 6.20 lists these areas and the frequency response to each item.

Areas in which over 70 percent of the teacher educators would like to have the State Curriculum Publication provide more information involve offering more specific information suggestions, supplying minimum curriculum content by grade, and suggesting activities, while roughly 50 percent would like to see more emphasis in the publication on definitions, objectives, and suggestions for equipment.

Teacher educators were requested to prioritize the groups which should provide the leadership in developing/updating the statewide curriculum and curriculum publications. In general, three groups received the most support for this responsibility with teacher education institutions being given high priority by 94 percent of the respondents. Approximately 80 percent of the respondents felt that the responsibility should be delegated to either the Minnesota State Department of Education or to a group of K-12 Industrial Arts teachers as indicated by the data displayed in Table 6.21.

6.7.2 Teacher Use and Views on the State Curriculum and Publication

Teachers were also asked to respond to items directed at accessing the usefulness of the State Curriculum Publication, the type of material it should provide, and the organization which should provide leadership in developing and upgrading statewide curriculum and curriculum publications.

In general, teachers agreed with teacher educators that the State Curriculum Publication helps teachers, at least to some extent, in the classroom. The teachers response to these items were similar to those of teacher educators although a somewhat larger percent of teacher educators indicated that the State Curriculum Publication needs to be supplemented and rewritten. Table 6.22 provides data responses concerning the State Curriculum Publication relating to its usefulness and acceptance by the teacher group.

TABLE 6.19

TEACHER EDUCATOR OPINIONS REGARDING SERVICES PROVIDED BY THE STATE CURRICULUM PUBLICATION
Max N=40

Opinions	Yes		To Some Extent		No		No Opinion		No Response	
	N	Freq.*	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Helps teachers in classroom	6	15%	23	58%	8	20%	1	2%	2	5%
Helps in curriculum design	10	25	25	63	2	5	1	2	2	5
Needs to be supplemented	27	68	5	12	5	12	1	3	2	5
Provides best organizational approach	10	25	14	35	12	30	2	5	2	5
Accepted by teachers	3	7	14	35	16	40	4	10	3	8
Needs to be re-written	20	50	5	12	8	20	3	8	4	10
Has items that should be eliminated	2	5	2	5	8	20	8	20	20	50

*Frequencies are row adjusted.

TABLE 6.20

SERVICES WHICH TEACHER EDUCATORS WANT THE STATE CURRICULUM PUBLICATION TO PROVIDE
Max N=40

Services	More		About the Same		Less		No Opinion		No Response	
	N	Freq.*	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Definitions	20	50%	16	40%	2	5%	1	2.5%	1	2.5%
Objectives	21	52	15	37	1	3	2	5	1	3
Philosophical Statements	12	30	18	45	6	15	3	8	1	2
Specific Information Suggested	28	70	9	23	-	-	2	5	1	2
Minimum Curriculum Content by Grade	30	75	6	15	1	2.5	2	5	1	2.5
Suggested Activities	28	70	8	20	2	5	1	2.5	1	2.5
Suggested Equipment	23	58	10	25	3	7	2	5	2	5
Other	1	2.5	1	2.5	-	-	2	5	36	90

*Frequencies are row adjusted.

TABLE 6.21

TEACHER-EDUCATOR PRIORITIES REGARDING GROUPS WHICH SHOULD DEVELOP/UPDATE STATEWIDE CURRICULUM AND PUBLICATIONS
Max N=40

Groups	Very High		High		Average		Low		Very Low		No Response	
	N	Freq.*	N	Freq.	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Minnesota State Department of Ed.	25	63%	8	20%	4	10%	-	-	2	5%	1	2%
Teacher Ed. Institutions	29	72	9	22	1	3	-	-	1	3	-	-
K-12 Industrial Arts Teachers	19	47	14	35	5	12	1	3	1	3	-	-
State Organizations	19	47	9	22	7	18	3	8	2	5	-	-
Regional Organizations	18	46	4	10	12	30	3	7	3	7	-	-
Committee of all of above	25	63	3	7	6	15	2	5	2	5	2	5
Other	3	8	-	-	1	2	-	-	-	-	36	90

*Frequencies are row adjusted.

TABLE 6.22

TEACHER OPINIONS REGARDING SERVICES PROVIDED BY THE STATE CURRICULUM PUBLICATION
Max N=1161

Opinions	Yes		To Some Extent		No		No Opinion		No Response	
	N	Freq.*	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Helps teachers in classroom	100	9%	540	46%	231	20%	129	11%	161	14%
Helps in curriculum design	180	15	447	39	221	19	137	12	176	15
Needs to be supplemented	517	45	160	14	177	15	132	11	175	15
Provides best organizational approach	100	9	240	21	324	28	236	20	261	22
Accepted by teachers	139	12	237	20	373	32	221	19	191	17
Needs to be re-written	284	25	155	13	83	7	245	21	394	34
Has items that should be eliminated	56	5	41	4	129	11	178	15	757	65

*Frequencies are row adjusted.

Approximately half of the teachers felt that the State Curriculum Publication should provide more information in the following areas: 1) specific information suggestions; 2) minimum curriculum content by grade level; 3) activity suggestions; and 4) equipment suggestions. As the data in Table 6.23 indicate, when the "more" and "about the same" responses are grouped, it indicates that over 50 percent of the teachers would also like to see more material in the publication on definitions, objectives, and philosophical statements.

TABLE 6.23

SERVICES WHICH TEACHERS WANT THE STATE CURRICULUM PUBLICATION TO PROVIDE
Max N=1161

Services	More		About the Same		Less		No Opinion		No Response	
	N	Freq.*	N	Freq.	N	Freq.	N	Freq.	N	Freq.
Definitions	267	23%	369	32%	50	4%	153	13%	322	28%
Objectives	353	30	349	30	56	5	126	11	277	24
Philosophical Statements	166	14	402	35	192	17	164	14	237	20
Specific Information Suggested	523	45	154	13	26	2	130	12	328	22
Minimum Curriculum Content by Grade	515	44	186	16	30	3	120	10	310	27
Suggested Activities	623	54	100	9	21	2	112	9	305	26
Suggested Equipment	506	43	121	10	25	2	127	11	382	34
Other	29	3	16	2	3	-	77	7	1036	88

*Frequencies are row adjusted.

The teacher questionnaire also asked respondents to check if they had received any information about the State Curriculum Publication through workshops, club meetings, or other sources.

Respondents could check more than one source. Results indicate that 64 percent of the respondents have received information about the State Curriculum Publication through attendance at industrial education club meetings, while approximately one-third of the respondents said that they had attended either college/university workshops, taken courses at a college or university or attended a State Department of Education sponsored workshop. The largest percentage (91%) checked "other" as a source of information. When asked if they would attend such courses/workshops if they were made available, 91 percent responded affirmatively.

Another item in the curriculum section instructed teachers to indicate if the programs or courses they teach have changed significantly in the past 5 years. Only 5 percent replied that they had made no changes, while 59 percent indicated some changes and 36 percent said they had made significant changes. Among teachers who made changes in program or course elements, only 8 percent indicated that the State Curriculum Publication influenced them to make the change, while 30 percent indicated that the publication partially influenced the change and 62 percent replied that the publication did not influence these changes.

Teachers were asked to check the program areas where courses have been added or where major changes in the emphasis of existant courses have occurred. The data in Table 6.24 indicate that the areas of construction and manufacturing were checked most often by the largest percentage of teachers in the survey and that each of these areas represent approximately one-quarter of all responses. The third program area indicated most often was energy with 17 percent of all responses in this area.

6.7.3 Views Regarding Revision of the State Curriculum Publication

In response to the question, "How often should the State Curriculum Publication be revised?", teacher educators and teachers responded almost uniformly with 58 percent of the teacher educators and 50 percent of the teachers saying that the publication should be revised every five years. Another 20 percent of both groups felt that it should be revised every ten years. Response data for this question are displayed in Table 6.25.

6.8 SUMMARY OF COMMENTS FROM RESPONDENTS

The last item on the Industrial Arts Survey Questionnaire asked for additional comments which could contribute to a study of the current issues involved in Industrial Arts education in the State of Minnesota. The following sections summarize the additional comments made by the three groups in the study.

TABLE 6.24

PROGRAM AREAS IN WHICH COURSES HAVE BEEN ADDED OR WHERE COURSE EMPHASIS HAS BEEN CHANGED

Program	All Teachers Max N=1161		
	N	Frequency	
		Relative	Adjusted
Communications	216	19%	15%
Construction	357	31	25
Energy	253	22	17
Manufacturing	339	29	24
Transportation	168	15	12
Other	100	9	7

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

TABLE 6.25

QUESTION: HOW OFTEN SHOULD THE STATE CURRICULUM PUBLICATION BE REVISED?

Years	Teacher Educators Max N=40			All Teachers Max N=1161		
	N	Frequency		N	Frequency	
		Rel.	Adj.		Rel.	Adj.
Every 5 years	23	58%	60%	582	50%	58%
Every 10 years	8	20	21	242	21	24
Every 15 years	1	2	3	39	3	4
Other	6	15	16	148	13	14

NOTE: Relative frequencies based on total number in the sample.
Adjusted frequencies based on total number of responses.

6.8.1 Teacher Educators' Comments

Teacher educators felt that Industrial Arts students should be surveyed to find their views and that these students believe Industrial Arts to be an important part of education. Concern was expressed that vocational certification is leading to the elimination of Industrial Arts. Respondents also believed that vocational centers and programs are drawing students who otherwise would have enrolled in Industrial Arts courses. Respondents also stated the opinion that many Industrial Arts teachers are not aware of the current problems encountered by Industrial Arts education, nor are teachers aware of the long-range effects of these problems.

6.8.2 Administrators' Comments

Secondary administrators believed that many schools are phasing out Industrial Arts; schools are changing Industrial Arts to Vocational Education to receive funding. These respondents also felt that the State should not mandate curriculum changes or development. A need for greater local autonomy was stated by administrators. They also commented that Industrial Arts allows the student a greater freedom to experiment, while Vocational Education forces a student to make a career decision which many students are too young to make.

6.8.3 Teachers' Comments

Local autonomy was the point most often expressed by Industrial Arts teachers. However, while teachers wanted less actual control by the State, they believed the State should provide more general guidance and leadership. The State publication Industrial Education in Minnesota is not practical or applicable to the present situation of Industrial Arts in Minnesota. Respondents also believed that the colleges and universities which train teachers are outdated in curriculum and materials. Teachers further believed that any paid industrial work experience should count towards certification.

VII. CONCLUSIONS

The purpose of the Industrial Arts survey was to identify, delineate, and clarify the opinions, attitudes, and perceptions of Minnesota educators on issues and concerns relating to Industrial Arts education in the State of Minnesota. Listed below are several general conclusions. These conclusions are not inclusive of all study findings but rather highlight some of the main findings. The notation following each statement is a reference to the section of the study which discusses the study's findings related to the conclusion. Based on the findings reported in Chapter VI of this document, the following general conclusions seem warranted:

State Supervision

- Curriculum development and promotion of the Industrial Arts image are viewed as priority areas where a State Industrial Arts Consultant or Supervisor could be of assistance. (Table 6.1)

Role/Image

- Approximately 50 percent or more of all respondents believe that the image of Industrial Arts needs improving. (page 18, Section 6.2)

- Respondents generally agree that the practical aspect of Industrial Arts education is one of its strengths. (page 18, Section 6.2.1)

- More publicity and improved public relations are viewed by respondents as ways in which the Industrial Arts image could be improved. (page 18, Section 6.2.3)

License Requirements

- Approximately one-third of all teachers, 40 percent of administrators, and just over one-half of teacher educators feel that industrial work experience should be required for entrance licensure. (page 21, Section 6.3.1)

- Those educators who feel that industrial work experience should be required for entrance licensure also feel that more hours of work experience should be required for senior high school teachers than of junior/middle school teachers. (Table 6.9)

- Over 90 percent of all respondents feel that a Bachelor's Degree is important as part of the Industrial Arts licensing requirements. (Table 6.10)

- Teacher opinion is divided regarding the wording on the teacher's license with only slightly more favoring the term "industrial education" over "industrial arts". (Table 6.11)

Teaching Effectiveness

- Respondents indicated that appropriate industrial work experience is more important in improving teaching effectiveness than is a masters degree. (page 26, Section 6.4. 1-2)

- Teachers feel that Master's Degree programs could better meet teacher needs through offering more technically oriented courses. (Table 6.12)

- Teachers feel that more inservice would be a helpful service from teacher education colleges and universities. (Table 6.13)

Minimum Program Requirements

- Administrators, unlike teachers, feel that more student time should be devoted to study of Industrial Arts at the elementary/junior high levels than at the senior high school level. (Table 6.14)

Funding

- Teachers and administrators agree that equipment for program expansion and improvement would be the best way to use additional State funds, while teacher educators indicate a preference for more teacher inservice. (Tables 6.15 and 6.16)

- Respondents generally agreed that curriculum development and teacher inservice should be a high priority for allocating additional funds but additional State supervision ranked low. (Tables 6.15 and 6.16)

Currriculum Development

- In general, teachers and teacher educators feel that the State Curriculum Publication helps teachers in the classroom and in curriculum design; however, both groups also feel that it needs to be supplemented and rewritten. (page 34, Section 6.7.1 -2)

- Teachers see the need for the State Curriculum Publication to contain more specific information regarding suggested activities. (Table 6.23)

APPENDIX A

TEACHER QUESTIONNAIRE

Minnesota State Department of Education
Capitol Square ☐ 550 Cedar Street ☐ St. Paul, Minnesota 55101

April 26, 1978

Dear Colleague:

As you may be aware, a grant has been awarded to conduct a comprehensive study of some Minnesota Industrial Arts-related issues, including: 1) state supervision, 2) funding, 3) minimum program requirements, and 4) licensure requirements. The attached survey form has been prepared and field-tested to gather data for measuring perceptions and attitudes relative to these issue areas; it is being sent to approximately 1,600 Industrial Arts teachers in Minnesota, approximately 60 teacher educators, and approximately 200 secondary school principals.

A steering committee consisting of the following personnel is managing this study in conjunction with Educational Management Services, Inc. (EMS), a private consulting firm in Minneapolis:

Robert Bell, Prior Lake Senior High, Professional Growth Committee, MIAA
Glenn Dukes, Winona State University, representing the Minnesota Industrial Teacher Educators
Bud Erickson, Fridley Junior High, President-elect of MIAA
Tom Ryerson, State Supervisor for Secondary Industrial Education

We fully recognize that we are asking for some of your most valuable commodity - time. We also recognize that industrial arts in Minnesota is an equally valuable commodity. It is our belief that you share this view and are willing to invest the few minutes necessary to complete and return the attached survey to Educational Management Services (EMS) in the attached, postage-paid, and addressed envelope.

Even though someone else in your school may have also received this survey, we request that all recipients respond. All responses which you provide will be held in strictest confidence by EMS, and will be used for group analysis only. (The coding in the upper-right-hand corner of the survey form is only used to assure a representative return of survey responses statewide.)

We expect to have completed this survey by May 15, after which a summary of results will be available. Thank you for your prompt reply at your earliest convenience.

Sincerely,

The Steering Committee

P.S.: A Definitions and Background Information Sheet is attached, for your reference, in completing the survey.

AN EQUAL OPPORTUNITY EMPLOYER

MINNESOTA INDUSTRIAL ARTS STUDY

DEFINITIONS AND BACKGROUND INFORMATION

- Definitions

- Industrial Arts Education

  Industrial arts education programs means those education programs: (a) which pertain to the body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes; (b) which provide opportunities for creativity and problem solving and assisting individuals in the making of informed and meaningful occupational choices or entry into the world of work.

  Source: Executive Board of the American Industrial Arts Association (AIAA) by the Legislative Committee of the AIAA and the Industrial Arts Division of the American Vocational Association (AVA)

- Industrial Education

  A generic term applying to all types of education related to the industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

  Source: Vocational-Technical Terminology (1971), an AVA publication

- Vocational Education

  Vocational or technical training or retraining which is given in schools or classes (including field or laboratory work and remedial or related academic and technical instruction incident thereto) under public supervision and control or under contract with a state board or local educational agency, and is conducted as part of a program designed to prepare individuals for gainful employment as semiskilled or skilled workers or technicians or subprofessionals in recognized occupations and in new and emerging occupations, or to prepare individuals for enrollment in advanced technical education programs, but excluding any program to prepare individuals for employment in occupations generally considered professional or which require a baccalaureate or higher degree.

  Source: Vocational-Technical Terminology (1971), an AVA publication.

- Background Information: Present State Supervision

  Two personnel presently work with secondary industrial education programs in the Minnesota State Department of Education. One person has responsibility for Construction and Manufacturing. The other person has responsibility for Transportation, Communications and Media, and for Industrial Education occupations.

MINNESOTA INDUSTRIAL ARTS STUDY

SURVEY QUESTIONNAIRE: TEACHERS (Office Use Only) (1-5)

Please complete each of the questions by filling in the blanks, checking (✓) or circling (O) the numeral of your choice. The information you provide will be held in strictest confidence and used for group analysis only. Disregard the numerals in the left margin as they are for office use only. Please return this questionnaire in the self-addressed, postage-paid envelope at your earliest convenience.

For Office Use Only

A. BACKGROUND INFORMATION

1. Do you serve in a: *(Please check one or more)*

6-10

____1. Elementary school
____2. Junior high school
____3. Senior high school
____4. Junior/Senior high school
____5. Other _____ *(Please Specify)*

2. Number of teachers in the Industrial Arts department where you serve: *(Please circle)*

11

1, 2, 3, 4, 5, 6, 7, 8 or more

3. What do your responsibilities include? *(Please check one or more)*

Percent of Time

	Full-Time	50% or More	Less Than 50%
12-13 ____1. Teaching Industrial Arts			
14-15 ____2. Teaching Vocationally-reimbursed Courses			
16-17 ____3. Administration			
18-19 ____4. Other _____ *(Please Specify)*			

4. Including this year, have you taught Industrial Arts/Industrial Education for: *(Please check one)*

20

____2 or less years; ____3-6; ____7-10; ____11-15; ____16 or more years

21 5. Are you vocationally licensed? *(Please check one)* ____1. Yes ____2. No

22-31 6. Your Area of Vocational Licensure: _____

7. Your highest level of Education: *(Please check one)*

32

1. B.A.____ 2. B.A. + 15____ 3. B.A. + 30____
4. M.A.____ 5. M.A. + 30____ 6. M.A. + 60____ 7. Ph.D.____

33-42 8. Your area of major (undergraduate degree): _____
43-52 Your area of minor (undergraduate degree): _____
53-62 Your major area of highest degree: _____

9. Are you working towards a: *(Please check one)*

63

____1. Master's Degree
____2. Vocational License
____3. Neither
____4. Both
____5. Other *(Please Specify)* _____

10. Please circle (O) the area(s) in which you teach this year:

64-65 25) Advanced Wood
66-67 26) Air Cond./Refrig.
68-69 27) Arch. Drawing
70-71 28) Auto Body
72-73 29) Auto Mechanics
74-75 30) Aviation
76-77 31) Bldg. Trades
78-79 32) Cabinet Making
33) Communications
34) Construction
35) Design
36) Drafting
37) Drawing
38) Electricity
39) Electronics
40) Energy
41) Foundry
42) General Metals
43) Graphic Arts
44) Hot Metals
45) Industrial Crafts
46) Leather
47) Machine Shop
48) Manufacturing
49) Mech. Drawing
50) Metals
51) Plastics
52) Plumbing
53) Power
54) Printing Trades
55) Radio/TV
56) Sheet Metal
57) Small Engines
58) Transportation
59) Welding
60) Woods
61) Other *(Please Specify)*
_____
_____
_____
_____
_____

(Please Turn To Page Two)

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B. STATE SUPERVISION

1. What priority should be given by the State Industrial Arts Consultant(s)/ Supervisor(s) to each of the following functions/responsibilities? *Please assign, by checking (✓) a priority (1 = high priority; 5 = low priority) that state personnel should give to each of the following functions:*

		Priority: High - - - - -Low 1 2 3 4 5
6	• Curriculum Development/Updating?.....	– – – – –
7	• School Visitations?.....	– – – – –
8	• Development/Enforcement of Standards for Industrial Arts?.....	– – – – –
9	• Interrelating/Coordinating Industrial Arts and Vocational Education?.....	– – – – –
10	• Consultant/Resource Person?.....	– – – – –
11	• Promotion of Industrial Arts, through such activities as support of professional and student organizations, planning and conducting conferences/ workshops, identifying speakers, etc.?.....	– – – – –
12	• Other *(Please Specify)*_____	– – – – –
		1 2 3 4 5
		Priority: High - - - - -Low

2. What services relative to Industrial Arts would you like to receive from the Minnesota State Department of Education? *(Please use additional page if more room is needed)*

13-22

C. ROLE/IMAGE OF INDUSTRIAL ARTS

1. List three descriptive terms or short phrases which characterize the strong points or unique aspects of Industrial Arts.

23-32

1. 3.

2.

2. List three descriptive terms or short phrases which characterize the weak points (or barriers to realizing full potential) of Industrial Arts.

33-42

1. 3.

2.

3. Does the present statewide image of Industrial Arts need improvement? *(Please check one)*

43

_____ 1. Yes _____ 2. No _____ 3. No Opinion

4. If the image of Industrial Arts needs improvement, briefly list up to three suggestions for its improvement.

44-53

1. 3.

2.

D. LICENSURE REQUIREMENTS/TEACHER EDUCATION

1. How do you think a teaching license should read? *(Please check one)*

54

_____1. Industrial Arts
_____2. Industrial Education
_____3. No Opinion
_____4. Other *(Please Specify)*_____

2. How important is industrial work experience as part of Industrial Arts licensure requirements? *(Please circle one)*

55

1. Not Important 3. Very Important
2. Important 4. No Opinion

(Please Turn To Page Three)

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3. How important is a B.S. (B.A.) Degree as part of Industrial Arts licensure requirements? *(Please circle one)*

56
1. Not Important
2. Important
3. Very Important
4. No Opinion

4. How important is an appropriate industrial work experience in improving teaching effectiveness? *(Please circle one)*

57
1. Not Important
2. Important
3. Very Important
4. No Opinion

5. How important is a Master's Degree in improving teaching effectiveness? *(Please circle one)*

58
1. Not Important
2. Important
3. Very Important
4. No Opinion

6. Are you being encouraged by your school district to obtain: *(Please check one response for each question)*

59 • A Master's Degree? ____1. Yes ____2. No
60 • Vocational Licensure? ____1. Yes ____2. No

7. Should industrial work experience be required for entrance licensure? *(Please check one)*

61 ____ 1. Yes ____ 2. No ____ 3. No Opinion

8. If industrial work experience were required for entrance licensure, how important would it be that such experience be in the area of specialty in which the teacher spends the majority of teaching time? *(Please check for each grade level)*

	Not Important	Important	Very Important	No Opinion
62 Junior High/Middle School	____	____	____	____
63 Senior High	____	____	____	____

9. If you checked "Important" or "Very Important" in Question 8, then do you believe industrial work experience should be:

(Check one in this column)	*(Check one in this column)*
____1. Wage Earning	____1. Credit Bearing
64-65 ____2. Non-wage Earning	____2. Non-credit bearing
____3. Combination of the above	____3. Combination of the Above
____4. No Opinion	____4. No Opinion

10. If you checked "Important" or "Very Important" in Question 8, how many hours do you feel should be required for work experience in Industrial Arts entrance licensure?

	(Check one in each column) Junior High/Middle School	Senior High
Less than 500 hours	____ 1.	____ 1.
500-999 hours	____ 2.	____ 2.
66-67 1000-1499 hours	____ 3.	____ 3.
1500-1999 hours	____ 4.	____ 4.
More than 2000 hours	____ 5.	____ 5.

11. Should a four-year teaching degree be required for licensure of all Industrial Arts teachers at the secondary school level? *(Check one)*

68 ____1. Yes ____2. No

12. Should a four-year teaching degree be required for licensure of all vocational teachers at the secondary school level? *(Check one)*

69 ____1. Yes ____2. No

(Please Turn To Page Four)

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13. Which modifications should teacher training institutions consider in order to better serve teachers in undergraduate and in-service/ graduate programs? *(Please check as many as apply)*

70 _____ More flexible scheduling (weekends, etc.)
71 _____ More activity/technically-oriented workshops
72 _____ More intensive classroom activities (e.g., two-week intensive courses vs. six-week courses)
73 _____ More flexibility regarding location of courses
74 _____ More options for independent study

Card #2
6-15 14. How do you feel Master's Degree programs could be changed to better meet the needs of teachers? *(Please use additional page if more room is needed)*

16-25 15. What additional programs or services from teacher education colleges/ universities would be helpful to you; e.g., in-service? *(Please use additional page if more room is needed)*

E. MINIMUM PROGRAM REQUIREMENTS

1. What do you feel should be the minimum required number of hours of student participation in Industrial Arts at the following grade levels?

26-29 1. Grades K-5 _____
30-33 2. Grades 6-9 _____
34-37 3. Grades 10-12 _____

2. Of the courses you are teaching this year, what percentages are:

38-40 1. _____% Primarily General Education
41-43 2. _____% Primarily Job Entry Skills
44-46 3. _____% Emphasis on Both General Education and Job Entry Skills

(Should total 100%)

3. Does your school district have a follow-up system for its high school graduates? *(Check one)*

47 _____1. Yes _____2. No

F. FUNDING

Introductory Statement: The following question is based on the assumption that the State of Minnesota might provide additional funds to spend on Industrial Arts. Your answers to this question are intended to help establish priorities for the allocation of such monies with respect to maximizing student benefit per dollar spent.

1. If the State of Minnesota had "X" number of additional dollars to be spent to better meet student needs, on what priority do you think these additional funds should be allocated? *(Please assign by checking (✓) a priority (1 = high priority; 5 = low priority) for the allocation of additional funds to each of the areas listed below):*

		Priority: High - - - - -Low 1	2	3	4	5
48	• Teacher Salaries?.....	_	_	_	_	_
49	• State-Level Curriculum Development?.....	_	_	_	_	_
50	• Local Curriculum Development?.....	_	_	_	_	_
51	• Teacher In-service?.....	_	_	_	_	_
52	• Equipment (not facilities or supplies) for program expansion/improvement?.....	_	_	_	_	_
53	• Pilot or Experimental Programs?.....	_	_	_	_	_
54	• Additional State Supervision?.....	_	_	_	_	_
55	• Industrial Arts Student Organization Projects?.....	_	_	_	_	_
56	• Other *(Please Specify)*_____	_	_	_	_	_
		1	2	3	4	5
		Priority: High - - - - -Low				

(Please Turn To Page Five)

For Office Use Only

2. Assuming that some additional requirements must be met in order to qualify for additional state funding, in what ways might it be reasonable (and beneficial) to change your current programs or courses? *(Check all that apply)*

57 _____ 1. In terms of program objectives
58 _____ 2. In terms of program depth
59 _____ 3. In terms of in-service training or staff upgrading
60 _____ 4. In terms of program evaluation and approval activities
61 _____ 5. I don't think change from the current program would be reasonable or beneficial

3. What impact(s) would additional funds have on improving instruction in Industrial Arts for students in your school? *(Please use additional page if more room is needed)*
62-71

G. CURRICULUM DEVELOPMENT/UPDATING

1. Have you attended any programs about the State Curriculum Publication, (Industrial Education in Minnesota, April, 1974) through: *(Please check as many as apply)*

72 • workshops at a college or university? _____1. Yes _____2. No
73 • courses at a college or university? _____1. Yes _____2. No
74 • industrial education club meetings? _____1. Yes _____2. No
75 • Minnesota Department of Education sponsored workshop? _____1. Yes _____2. No
76 • Other *(Please Specify* _____

2. Would you attend such courses/workshops (as identified above) if they were made available? *(Please check one)*
77

3. Have the programs or the courses you have been teaching changed in the past five years? *(Please check one)*

78 _____1. No Change _____2. Some Change _____3. Significant Change

4. If you have made changes in program/course elements, did the State Curriculum Publication influence you to do this? *(Please check one)*

79 _____1. Yes _____2. Partially _____3. No

5. How often should the State Curriculum Publication be revised? *(Please check one)*

80 ___1. Every five years; ___2. Every ten years; ___3. Every fifteen years
___4. Other *(Please Specify)* _____

Card #3

6. If you have added any courses or made any major changes in emphasis of courses, what programs have been involved? *(Please check as appropriate)*

6-11 _____1. Communications _____4. Manufacturing
_____2. Construction _____5. Transportation
_____3. Energy _____6. Other *(Please Specify)*
_____

(Please Turn To Page Six)

For Office Use Only

7. Does the April, 1974 Industrial Education in Minnesota, State Curriculum Publication: *(Please check one for each item)*

	No	To Some Extent	Yes	No Opinion
12 • Provide information of the kind that helps teachers in the classroom?	—	—	—	—
13 • Provide information of the kind that helps teachers in curriculum development and design?	—	—	—	—
14 • Need to be supplemented with detailed outlines or courses of study to assist teachers in course planning?	—	—	—	—
15 • Provide *the best* organizational approaches by using clusters?	—	—	—	—
16 • Have general acceptance by teachers?	—	—	—	—
17 • Need to be re-written?	—	—	—	—
18 • Include items which should be eliminated? *(If so, please specify)*	—	—	—	—
_____	—	—	—	—

8. With regard to the State Curriculum Publication, Industrial Education in Minnesota, should it provide: *(Please check one for each item)*

	More	Less	About The Same	No Opinion
19 • Definitions?	—	—	—	—
20 • Objectives?	—	—	—	—
21 • Philosophical Statements?	—	—	—	—
22 • Specific information suggested?	—	—	—	—
23 • Minimum curriculum content by grade level?	—	—	—	—
24 • Suggested Activities?	—	—	—	—
25 • Suggested Equipment?	—	—	—	—
26 • Other *(Please Specify)*	—	—	—	—
_____	—	—	—	—

9. What priority should each of the following groups attach to providing leadership in developing/updating of statewide curriculum and curriculum publications? *Please assign, by checking (✓), a priority (1 = high priority; 5 = low priority) that each group should give to the leadership needs:*

	Priority: High 1	2	3	4	Low 5
27 • The Minnesota State Department of Education (Industrial Arts Supervisors/Consultants).....	—	—	—	—	—
28 • Teacher Education Institutions?.....	—	—	—	—	—
29 • K-12 Industrial Arts teachers?.....	—	—	—	—	—
30 • State organizations (e.g., M.I.A.A.; M.I.T.E.)?.....	—	—	—	—	—
31 • Regional organizations (e.g., area clubs)?.....	—	—	—	—	—
32 • Committee of all of above?.....	—	—	—	—	—
33 • Other *(Please Specify)*_____	—	—	—	—	—
	1	2	3	4	5
Priority:	High				Low

34-43 Do you wish to make any additional comments which could contribute to a study of industrial arts issues germane to the State of Minnesota? *Please use additional page if more space is needed.*

THANK YOU!

Please return in the self-addressed, postage-paid envelope, at your earliest convenience to:

EDUCATIONAL MANAGEMENT SERVICES, INC.
4510 West 77th Street, Suite 150
Minneapolis, Minnesota 55435

APPENDIX B

TEACHER EDUCATOR QUESTIONNAIRE

Minnesota State Department of Education
Capitol Square ☐ 550 Cedar Street ☐ St. Paul, Minnesota 55101

April 26, 1978

Dear Colleague:

As you may be aware, a grant has been awarded to conduct a comprehensive study of some Minnesota Industrial Arts-related issues, including: 1) state supervision, 2) funding, 3) minimum program requirements, and 4) licensure requirements. The attached survey form has been prepared and field-tested to gather data for measuring perceptions and attitudes relative to these issue areas; it is being sent to approximately 1,600 Industrial Arts teachers in Minnesota, approximately 60 teacher educators, and approximately 200 secondary school principals.

A steering committee consisting of the following personnel is managing this study in conjunction with Educational Management Services, Inc. (EMS), a private consulting firm in Minneapolis:

Robert Bell, Prior Lake Senior High, Professional Growth Committee, MIAA
Glenn Dukes, Winona State University, representing the Minnesota Industrial Teacher Educators
Bud Erickson, Fridley Junior High, President-elect of MIAA
Tom Ryerson, State Supervisor for Secondary Industrial Education

We fully recognize that we are asking for some of your most valuable commodity - time. We also recognize that industrial arts in Minnesota is an equally valuable commodity. It is our belief that you share this view and are willing to invest the few minutes necessary to complete and return the attached survey to Educational Management Services (EMS) in the attached, postage-paid, and addressed envelope.

Even though someone else in your school may have also received this survey, we request that all recipients respond. All responses which you provide will be held in strictest confidence by EMS, and will be used for group analysis only. (The coding in the upper-right-hand corner of the survey form is only used to assure a representative return of survey responses statewide.)

We expect to have completed this survey by May 15, after which a summary of results will be available. Thank you for your prompt reply at your earliest convenience.

Sincerely,

The Steering Committee

P.S.: A Definitions and Background Information Sheet is attached, for your reference, in completing the survey.

AN EQUAL OPPORTUNITY EMPLOYER

MINNESOTA INDUSTRIAL ARTS STUDY

DEFINITIONS AND BACKGROUND INFORMATION

- Definitions

- Industrial Arts Education

  Industrial arts education programs means those education programs: (a) which pertain to the body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes; (b) which provide opportunities for creativity and problem solving and assisting individuals in the making of informed and meaningful occupational choices or entry into the world of work.

  Source: Executive Board of the American Industrial Arts Association (AIAA) by the Legislative Committee of the AIAA and the Industrial Arts Division of the American Vocational Association (AVA)

- Industrial Education

  A generic term applying to all types of education related to the industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

  Source: Vocational-Technical Terminology (1971), an AVA publication

- Vocational Education

  Vocational or technical training or retraining which is given in schools or classes (including field or laboratory work and remedial or related academic and technical instruction incident thereto) under public supervision and control or under contract with a state board or local educational agency, and is conducted as part of a program designed to prepare individuals for gainful employment as semiskilled or skilled workers or technicians or subprofessionals in recognized occupations and in new and emerging occupations, or to prepare individuals for enrollment in advanced technical education programs, but excluding any program to prepare individuals for employment in occupations generally considered professional or which require a baccalaureate or higher degree.

  Source: Vocational-Technical Terminology (1971), an AVA publication.

- Background Information: Present State Supervision

  Two personnel presently work with secondary industrial education programs in the Minnesota State Department of Education. One person has responsibility for Construction and Manufacturing. The other person has responsibility for Transportation, Communications and Media, and for Industrial Education occupations.

MINNESOTA INDUSTRIAL ARTS STUDY

SURVEY QUESTIONNAIRE: TEACHER EDUCATORS (Office Use Only) (1-5)

Please complete each of the questions by filling in the blanks, checking (✓) or circling (O) the numeral of your choice. The information you provide will be held in strictest confidence and used for group analysis only. Disregard the numerals in the left margin as they are for office use only. Please return this questionnaire in the self-addressed, postage-paid envelope at your earliest convenience.

For Office Use Only

A. BACKGROUND INFORMATION

1. Number of teacher educators in the Industrial Arts department where you serve: *(Please circle)*

6 1, 2, 3, 4, 5, 6, 7, 8 or more

2. What do your responsibilities include? *(Please check one or more)*

		Percent of Time		
		Full-Time	50% or More	Less Than 50%
7-8	____ 1. Teaching Industrial Arts			
9-10	____ 2. Teaching Vocationally-reimbursed Courses			
11-12	____ 3. Administration			
13-14	____ 4. Other _____ *(Please Specify)*			

3. Including this year, have you taught Industrial Arts/Industrial Education for: *(Please check one)*

15 ___2 or less years; ___3-6; ___7-10; ___11-15; ___16 or more years

16 4. Are you vocationally licensed? *(Please check one)* ___1. Yes ___2. No

17-26 5. Your Area of Vocational licensure: _____

6. Your highest level of Education: *(Please check one)*

27 1. B.A.____ 2. B.A. + 15____ 3. B.A. + 30____
4. M.A.____ 5. M.A. + 30____ 6. M.A. + 60____ 7. Ph.D.____

B. STATE SUPERVISION

1. What priority should be given by the State Industrial Arts Consultant(s)/ Supervisor(s) to each of the following functions/responsibilities? *Please assign, by checking (✓) a priority (1 = high priority; 5 = low priority) that state personnel should give to each of the following functions:*

		Priority: High - - - - -Low 1	2	3	4	5
23	• Curriculum Development/Updating?.....	_	_	_	_	_
29	• School Visitations?.....	_	_	_	_	_
30	• Development/Enforcement of Standards for Industrial Arts?.....	_	_	_	_	_
31	• Interrelating/Coordinating Industrial Arts and Vocational Education?.....	_	_	_	_	_
32	• Consultant/Resource Person?.....	_	_	_	_	_
33	• Promotion of Industrial Arts, through such activities as support of professional and student organizations, planning and conducting conferences/ workshops, identifying speakers, etc.?.....	_	_	_	_	_
34	• Other *(Please Specify)* _____	_	_	_	_	_
		1	2	3	4	5
	Priority:	High - - - - -Low				

2. What services relative to Industrial Arts would you like to receive from the Minnesota State Department of Education? *(Please use additional page if more room is needed)*

35-44

(Please Turn To Page Two)

For Office Use Only

C. ROLE/IMAGE OF INDUSTRIAL ARTS

1. List three descriptive terms or short phrases which characterize the strong points or unique aspects of Industrial Arts.

45-54

1. 3.

2.

2. List three descriptive terms or short phrases which characterize weak points (or barriers to realizing full potential) of Industrial Arts.

55-64

1. 3.

2.

3. Does the present statewide image of Industrial Arts need improvement? *(Please check one)*

65

____ 1. Yes ____ 2. No ____ 3. No Opinion

4. If the image of Industrial Arts needs improvement, briefly list up to three suggestions for its improvement.

66-75

1.

2.

3.

D. LICENSURE REQUIREMENTS/TEACHER EDUCATION

1. How important is industrial work experience as part of Industrial Arts licensure requirements? *(Please circle one)*

76

1. Not Important
2. Important
3. Very Important
4. No Opinion

2. How important is a B.S. (B.A.) Degree as part of Industrial Arts licensure requirements? *(Please circle one)*

77

1. Not Important
2. Important
3. Very Important
4. No Opinion

3. How important is an appropriate industrial work experience in improving teaching effectiveness? *(Please circle one)*

78

1. Not Important
2. Important
3. Very Important
4. No Opinion

4. How important is a Master's Degree in improving teaching effectiveness? *(Please circle one)*

79

1. Not Important
2. Important
3. Very Important
4. No Opinion

5. Should industrial work experience be required for entrance licensure? *(Please check one)*

80

____ 1. Yes ____ 2. No ____ 3. No Opinion

Card #2

6. If industrial work experience were required for entrance licensure, how important would it be that such experience be in the area of specialty in which the teacher spends the majority of teaching time? *(Please check for each grade level)*

	Not Important	Important	Very Important	No Opinion
6 Junior High/Middle School	____	____	____	____
7 Senior High	____	____	____	____

(Please Turn To Page Three)

For Office Use Only

7. If you checked "Important" or "Very Important" in Question 6, then do you believe industrial work experience should be:

8-9	*(Check one in this column)*	*(Check one in this column)*
	____ 1. Wage Earning	____ 1. Credit Bearing
	____ 2. Non-Wage Earning	____ 2. Non-credit Bearing
	____ 3. Combination of the above	____ 3. Combination of the above
	____ 4. No Opinion	____ 4. No Opinion

8. If you checked "Important" or "Very Important" in Question 6, how many hours do you feel should be required for work experience in Industrial Arts entrance licensure?

10-11		*(Check one in each column)* Junior High/Middle School	Senior High
	Less than 500 hours	____ 1.	____ 1.
	500-999 hours	____ 2.	____ 2.
	1000-1499 hours	____ 3.	____ 3.
	1500-1999 hours	____ 4.	____ 4.
	More than 2000 hours	____ 5.	____ 5.

9. Should a four-year teaching degree be required for licensure of all Industrial Arts teachers at the secondary school level? *(Check One)*

12 ____ 1. Yes ____ 2. No

10. Should a four-year teaching degree be required for licensure of all vocational teachers at the secondary school level? *(Check One)*

13 ____ 1. Yes ____ 2. No

E. FUNDING

Introductory Statement: The following question is based on the assumption that the State of Minnesota might provide additional funds to spend on Industrial Arts. Your answers to this question are intended to help establish priorities for the allocation of such monies with respect to maximizing student benefit per dollar spent.

1. If the State of Minnesota had "X" number of additional dollars to be spent to better meet student needs, on what priority do you think these additional funds should be allocated? *Please assign by checking (✓) a priority (1 = high priority; 5 = low priority) for the allocation of additional funds to each of the areas listed below:*

	Priority: High- - - - - Low	1	2	3	4	5
14	• Teacher Salaries?.....	–	–	–	–	–
15	• State-Level Curriculum Development?.....	–	–	–	–	–
16	• Local Curriculum Development?.....	–	–	–	–	–
17	• Teacher In-service?.....	–	–	–	–	–
18	• Equipment (not facilities or supplies) for program expansion/improvement?.....	–	–	–	–	–
19	• Pilot or Experimental Programs?.....	–	–	–	–	–
20	• Additional State Supervision?.....	–	–	–	–	–
21	• Industrial Arts Student Organization Projects?.....	–	–	–	–	–
22	• Other *(Please Specify)*_____	–	–	–	–	–
	Priority: High- - - - - Low	1	2	3	4	5

(Please Turn To Page Four)

For Office Use Only

F. CURRICULUM DEVELOPMENT/UPDATING

1. Does the April, 1974 Industrial Education in Minnesota State Curriculum Publication: *(Please check one for each item)*

		No	To Some Extent	Yes	No Opinion
23	• Provide information of the kind that helps teachers in the classroom?	—	—	—	—
24	• Provide information of the kind that helps teachers in curriculum development and design?	—	—	—	—
25	• Need to be supplemented with detailed outlines or courses of study to assist teachers in course planning?	—	—	—	—
26	• Provide *the best* organizational approaches by using clusters?	—	—	—	—
27	• Have general acceptance by teachers?	—	—	—	—
28	• Need to be re-written?	—	—	—	—
29	• Include items which should be eliminated? *If so, please specify)* _____	—	—	—	—

2. With regard to the State Curriculum Publication, Industrial Education in Minnesota, should it provide: *(Please check one for each item):*

		More	Less	About The Same	No Opinion
30	• Definitions?	—	—	—	—
31	• Objectives?	—	—	—	—
32	• Philosophical Statements?	—	—	—	—
33	• Specific information Suggested?	—	—	—	—
34	• Minimum curriculum content by grade level?	—	—	—	—
35	• Suggested Activities?	—	—	—	—
36	• Suggested Equipment?	—	—	—	—
37	• Other *(Please Specify)* _____	—	—	—	—

3. What priority should each of the following groups attach to providing leadership in developing/updating of statewide curriculum and curriculum publications? *Please assign, by checking (✔), a priority (1 = high priority; 5 = low priority) that each group should give to the leadership needs:*

		Priority: High 1	2	3	4	Low 5
38	• The Minnesota State Department of Education (Industrial Arts Supervisors/Consultants)?.....	—	—	—	—	—
39	• Teacher Education Institutions?.....	—	—	—	—	—
40	• K-12 Industrial Arts teachers?.....	—	—	—	—	—
41	• State organizations (e.g., M.I.A.A.; M.I.T.E.)?.....	—	—	—	—	—
42	• Regional organizations (e.g., area clubs)?.....	—	—	—	—	—
43	• Committee of all of above?.....	—	—	—	—	—
44	• Other *(Please Specify)* _____	—	—	—	—	—
		1	2	3	4	5
		Priority: High				Low

4. How often should the State Curriculum Publication be revised? *(Check one)*

45 ___1. Every five years; ___2. Every ten years; ___3. Every fifteen years
___4. Other *(Please Specify)* _____

Do you wish to make any additional comments which could contribute to a study of industrial arts issues germane to the State of Minnesota? *Please use additional page.* 46-55

THANK YOU!

Please return in the self-addressed, postage-paid envelope, at your earliest convenience, to:

EDUCATIONAL MANAGEMENT SERVICES, INC.
4510 West 77th Street, Suite 150
Minneapolis, Minnesota 55435

APPENDIX C

ADMINISTRATOR QUESTIONNAIRE

Minnesota State Department of Education
Capitol Square ☐ 550 Cedar Street ☐ St. Paul, Minnesota 55101

April 26, 1978

Dear Colleague:

As you may be aware, a grant has been awarded to conduct a comprehensive study of some Minnesota Industrial Arts-related issues, including: 1) state supervision, 2) funding, 3) minimum program requirements, and 4) licensure requirements. The attached survey form has been prepared and field-tested to gather data for measuring perceptions and attitudes relative to these issue areas; it is being sent to approximately 1,600 Industrial Arts teachers in Minnesota, approximately 60 teacher educators, and approximately 200 secondary school principals.

A steering committee consisting of the following personnel is managing this study in conjunction with Educational Management Services, Inc. (EMS), a private consulting firm in Minneapolis:

Robert Bell, Prior Lake Senior High, Professional Growth Committee, MIAA
Glenn Dukes, Winona State University, representing the Minnesota Industrial Teacher Educators
Bud Erickson, Fridley Junior High, President-elect of MIAA
Tom Ryerson, State Supervisor for Secondary Industrial Education

We fully recognize that we are asking for some of your most valuable commodity - time. We also recognize that industrial arts in Minnesota is an equally valuable commodity. It is our belief that you share this view and are willing to invest the few minutes necessary to complete and return the attached survey to Educational Management Services (EMS) in the attached, postage-paid, and addressed envelope.

Even though someone else in your school may have also received this survey, we request that all recipients respond. All responses which you provide will be held in strictest confidence by EMS, and will be used for group analysis only. (The coding in the upper-right-hand corner of the survey form is only used to assure a representative return of survey responses statewide.)

We expect to have completed this survey by May 15, after which a summary of results will be available. Thank you for your prompt reply at your earliest convenience.

Sincerely,

The Steering Committee

P.S.: A Definitions and Background Information Sheet is attached, for your reference, in completing the survey.

AN EQUAL OPPORTUNITY EMPLOYER

MINNESOTA INDUSTRIAL ARTS STUDY

DEFINITIONS AND BACKGROUND INFORMATION

- Definitions

- Industrial Arts Education

  Industrial arts education programs means those education programs: (a) which pertain to the body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes; (b) which provide opportunities for creativity and problem solving and assisting individuals in the making of informed and meaningful occupational choices or entry into the world of work.

  Source: Executive Board of the American Industrial Arts Association (AIAA) by the Legislative Committee of the AIAA and the Industrial Arts Division of the American Vocational Association (AVA)

- Industrial Education

  A generic term applying to all types of education related to the industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

  Source: Vocational-Technical Terminology (1971), an AVA publication

- Vocational Education

  Vocational or technical training or retraining which is given in schools or classes (including field or laboratory work and remedial or related academic and technical instruction incident thereto) under public supervision and control or under contract with a state board or local educational agency, and is conducted as part of a program designed to prepare individuals for gainful employment as semiskilled or skilled workers or technicians or subprofessionals in recognized occupations and in new and emerging occupations, or to prepare individuals for enrollment in advanced technical education programs, but excluding any program to prepare individuals for employment in occupations generally considered professional or which require a baccalaureate or higher degree.

  Source: Vocational-Technical Terminology (1971), an AVA publication.

- Background Information: Present State Supervision

  Two personnel presently work with secondary industrial education programs in the Minnesota State Department of Education. One person has responsibility for Construction and Manufacturing. The other person has responsibility for Transportation, Communications and Media, and for Industrial Education occupations.

MINNESOTA INDUSTRIAL ARTS STUDY

SURVEY QUESTIONNAIRE: ADMINISTRATORS (Office Use Only) (1-5)

Please complete each of the questions by filling in the blanks, checking (✓) or circling (O) the numeral of your choice. The information you provide will be held in strictest confidence and used for group analysis only. Disregard the numerals in the left margin as they are for office use only. Please return this questionnaire in the self-addressed, postage-paid envelope at your earliest convenience.

For Office Use Only

A. BACKGROUND INFORMATION

1. Do you serve in a: *(Please check one or more)* (6-10)

_____1. Elementary school
_____2. Junior high school/ middle school
_____3. Senior high school
_____4. Junior/Senior high school
_____5. Other _____ *(Specify)*

2. What do your responsibilities include? *(Please check one or more)*

	Percent of Time		
	Full-Time	50% or More	Less Than 50%
(11-12) _____1. Teaching Industrial Arts			
(13-14) _____2. Teaching Vocationally-reimbursed Courses			
(15-16) _____3. Administration			
(17-18) _____4. Other _____ *(Specify)*			

B. STATE SUPERVISION

1. What priority should be given by the State Industrial Arts Consultant(s)/ Supervisor(s) to each of the following functions/responsibilities? *Please assign, by checking (✓) a priority (1 = high priority; 5 = low priority) that state personnel should give to each of the following functions:*

	Priority: High - - - - -Low 1	2	3	4	5
(19) • Curriculum Development/Updating?.....	_	_	_	_	_
(20) • School Visitations?.....	_	_	_	_	_
(21) • Development/Enforcement of Standards for Industrial Arts?.....	_	_	_	_	_
(22) • Interrelating/Coordinating Industrial Arts and Vocational Education?.....	_	_	_	_	_
(23) • Consultant/Resource Person?.....	_	_	_	_	_
(24) • Promotion of Industrial Arts, through such activities as support of professional and student organizations, planning and conducting conferences/ workshops, identifying speakers, etc.?.....	_	_	_	_	_
(25) • Other *(Please Specify)* _____	_	_	_	_	_
	1	2	3	4	5
	Priority: High - - - - -Low				

2. What services relative to Industrial Arts would you like to receive from the Minnesota State Department of Education? *(Please use additional page if more room is needed)* (26-35)

(Please Turn To Page 2)

ffice
e Only

C. ROLE/IMAGE OF INDUSTRIAL ARTS

1. List three descriptive terms or short phrases which characterize the strong points or unique aspects of Industrial Arts.

45 1. 3.

2.

2. List three descriptive terms or short phrases which characterize the weak points (or barriers to realizing full potential) of Industrial Arts.

55 1. 3.

2.

3. Does the present statewide image of Industrial Arts need improvement? *(Please check one)*

56 ____1. Yes ____2. No ____3. No Opinion

4. If the image of Industrial Arts needs improvement, briefly list up to three suggestions for its improvement.

66 1. 3.

2.

D. LICENSURE REQUIREMENTS/TEACHER EDUCATION

1. How important is industrial work experience as part of Industrial Arts licensure requirements? *(Please circle one)*

67 1. Not Important 3. Very Important
2. Important 4. No Opinion

2. How important is a B.S. (B.A.) Degree as part of Industrial Arts licensure requirements? *(Please circle one)*

68 1. Not Important 3. Very Important
2. Important 4. No Opinion

3. How important is an appropriate industrial work experinece in improving teaching effectiveness? *(Please circle one)*

69 1. Not Important 3. Very Important
2. Important 4. No Opinion

4. How important is a Master's Degree in improving teaching effectiveness? *(Please circle one)*

70 1. Not Important 3. Very Important
2. Important 4. No Opinion

5. Should industrial work experience be required for entrance licensure? *(Please check one)*

71 ____1. Yes ____2. No ____3. No Opinion

(Please Turn To Page 3)

Office Use Only

6. If industrial work experience were required for entrance licensure, how important would it be that such experience be in the area of specialty in which the teacher spends the majority of teaching time? *(Please check for each grade level)*

	Not Important	Important	Very Important	No Opinion
72 Junior High/Middle School	____	____	____	____
73 Senior High	____	____	____	____

7. If you checked "Important" or "Very Important" in Question 6 above, then do you believe industrial work experience should be:

(Check one in this column)	*(Check one in this column)*
74 ____1. Wage Earning	____1. Credit Bearing
____2. Non-wage Earning	____2. Non-credit bearing
75 ____3. Combination of the Above	____3. Combination of the Above
____4. No Opinion	____4. No Opinion

8. If you checked "Important" or "Very Important" in Question 6 above, how many hours do you feel should be required for work experience in Industrial Arts entrance licensure?

	(Check one in each column) Junior High/Middle School	Senior High
76 Less than 500 hours	____1.	____1.
500-999 hours	____2.	____2.
77 1000-1499 hours	____3.	____3.
1500-1999 hours	____4.	____4.
More than 2000 hours	____5.	____5.

9. Should a four-year teaching degree be required for licensure of all Industrial Arts teachers at the secondary school level? *(Check one)*

78 ____1. Yes ____2. No

10. Should a four-year teaching degree be required for licensure of all vocational teachers at the secondary school level? *(Check one)*

79 ____1. Yes ____2. No

Card #2 E. MINIMUM PROGRAM REQUIREMENTS

1. What do you feel should be the minimum required number of hours of student participation in Industrial Arts at the following grade levels?

6-9 1. Grades K-5 _____
10-13 2. Grades 6-9 _____
14-17 3. Grades 10-12 _____

2. Of the courses being taught at your school this year, what percent are:

18-20 1. ____% Primarily General Education
21-23 2. ____% Primarily Job Entry Skills
24-26 3. ____% Emphasis on Both General Education and Job Entry Skills

(Should total 100%)

(Please Turn To Page 4)

or
ff e
se Only

27 3. Does your school district have a follow-up system for its high school graduates? *(Please check one)* ____1. Yes ____2. No

F. FUNDING

Introductory Statement: The following question is based on the assumption that the State of Minnesota might provide additional funds to spend on Industrial Arts. Your answers to this question are intended to help establish priorities for the allocation of such monies with respect to maximizing student benefit per dollar spent.

1. If the State of Minnesota had "X" number of additional dollars to be spent to better meet student needs, on what priority do you think these additional funds should be allocated? *Please assign by checking (✓) a priority (1 = high priority; 5 = low priority) for the allocation of additional funds to each of the areas listed below:*

	Priority: High - - - - -Low 1	2	3	4	5
28 • Teacher Salaries?.....	_	_	_	_	_
29 • State-Level Curriculum Development?.....	_	_	_	_	_
30 • Local Curriculum Development?.....	_	_	_	_	_
31 • Teacher In-service?.....	_	_	_	_	_
32 • Equipment (not facilities or supplies) for program expansion/improvement?.....	_	_	_	_	_
33 • Pilot or Experimental Programs?.....	_	_	_	_	_
34 • Additional State Supervision?.....	_	_	_	_	_
35 • Industrial Arts Student Organization Projects?.....	_	_	_	_	_
36 • Other *(Please Specify)*_____	_	_	_	_	_
Priority: High - - - - -Low	1	2	3	4	5

2. Assuming that some additional requirements must be met in order to qualify for additional state funding, in what ways might it be reasonable (and beneficial) to change your current programs or courses? *(Check all that apply)*

37 ____1. In terms of program objectives
38 ____2. In terms of program depth
39 ____3. In terms of in-service training or staff upgrading
40 ____4. In terms of program evaluation and approval activities
41 ____5. I don't think change from the current program would be reasonable or beneficial

3. What impact(s) would additional funds have on improving instruction in Industrial Arts for students in your school? *Please use additional page.*

42-51

52-61 Do you wish to make any additional comments which could contribute to a study of industrial arts issues germane to the State of Minnesota? *Please use additional page.*

THANK YOU!

Please return in the self-addressed, postage-paid envelope to:

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